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THE
DENTAL ADVERTISER

A QUARTERLY JOURNAL, DEVOTED TO
THE ADVANCEMENT OF THE
DENTAL PROFESSION.

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THE DENTAL ADVERTISER.

VOL. XXI.—BUFFALO, N. Y., JANUARY, 1890.—No. 1.

THE THERMOMETER AS AN ACCESSORY TO THE VULCANIZER.

BY GEORGE B. SNOW, D. D. S., BUFFALO, N. Y.

Although the thermometer is almost universally employed for indicating the temperature of the dental vulcanizer, the peculiarities of its action in this connection have been but little studied. Dentists usually put the utmost faith in its indications, when, as a matter of fact, it is only under certain conditions that it is able to show the exact temperature of the vulcanizer; and, as will be seen, these conditions do not usually obtain.

When thermometers were first used as a means of registering the temperature of the vulcanizer, they were so mounted that the bulb projected into the interior of the vulcanizer; a steam-tight joint being made around the stem of the instrument by means of a stuffing-box or its equivalent. The bulb of the thermometer was thus surrounded by an atmosphere of steam, which came into direct contact with it, and transmitted its heat directly to it.

It was soon found that the steam had a solvent action upon the glass of which the instrument is composed, and that after a short time the bulb would become opaque, and its surface covered with fine cracks, which would extend through the thickness of the glass, causing the destruction of the instrument.

To obviate this objection, and to increase the durability of the thermometer, which appeared to be admirably adapted in other respects to its uses as an adjunct to the vulcanizer, it was set in a "Mercury Bath," an invention of the late Dr. George E. Hayes. A cupped nipple, threaded upon its exterior, was formed upon the top of the vulcanizer, upon which

the thermometer case was screwed, the bulb dipping into the cup which contained sufficient mercury to partially cover it. A perfect metallic connection was thus insured between the vulcanizer and thermometer, and heat was promptly transmitted from one to the other, while, as the glass was no longer subjected to the action of the steam, its durability was greatly enhanced; there being, in fact, nothing to destroy it but accident or bad usage. The employment of the mercury bath with dental vulcanizers has therefore become almost universal.

Some experiments performed with a gas regulator, by the writer, developed the fact, however, that there was a variation at times, either in the action of the regulator or of the thermometer used in connection with it. Indeed there seemed to be quite a substantial disagreement between the two. The Coolidge Regulator, which was the one experimented with, is operated by steam pressure and not directly by changes of temperature; and when a steam-gauge was mounted upon the vulcanizer, it agreed with the action of the regulator, showing that the thermometer was at fault. Three thermometers were then prepared and tested for accuracy, and mounted upon the same vulcanizer. One, No. 3, (see diagram,) was set in a mercury bath, in the ordinary manner; one, No. 2, was set as a "steam" thermometer, in the old-fashioned way, its bulb projecting into the steam space inside the vulcanizer; and the third, No. 1, which was longer than the others, passed into the vulcanizer and extended downwards into the water space, the vulcanizer being half full of water. A steam-gauge was attached to the vulcanizer, as was also a blow-off valve. Upon applying heat, it was found that no two of the thermometers registered alike, nor did either of the three agree with the published tables of steam pressures and temperatures* and the readings of the steam-gauge. After opening the blow-off, and expelling the air which was included in the vulcanizer, the two thermometers which projected into the interior of the vulcanizer agreed with the gauge and table of pressures, but the mercury bath thermometer was still in error.

*TABLE OF THE ELASTIC FORCE OF STEAM.

CORRECTED TO CORRESPOND WITH THE STEAM GAUGE.

Degrees of Temperature, Fahrenheit.	Elastic Force in lbs. per square inch.	Degrees of Temperature, Fahrenheit.	Elastic Force in lbs. per square inch.	Degrees of Temperature, Fahrenheit.	Elastic Force in lbs. per square inch.	Degrees of Temperature, Fahrenheit.	Elastic Force in lbs. per square inch.
212 . . . 0		338 . . . 100		388 . . . 200		430 . . . 335	
240 . . . 10		344 . . . 110		392 . . . 210		444 . . . 385	
259 . . . 20		350 . . . 120		396 . . . 220		457 . . . 435	
279 . . . 30		356 . . . 130		400 . . . 230		467 . . . 485	
287 . . . 40		361 . . . 140		403 . . . 240		477 . . . 535	
298 . . . 50		366 . . . 150		406 . . . 250		487 . . . 585	
307 . . . 60		371 . . . 160		409 . . . 260		504 . . . 685	
316 . . . 70		374 . . . 170		412 . . . 270		519 . . . 785	
324 . . . 80		379 . . . 180		415 . . . 280		535 . . . 885	
331 . . . 90		384 . . . 190		418 . . . 290		546 . . . 985	

The results obtained are most easily compared and studied if represented graphically, and a diagram has accordingly been prepared as follows. A series of horizontal lines have been ruled, each representing a rise in pressure of ten pounds, as compared with the line below; also a series of perpendicular lines, each representing a rise in temperature of ten degrees, as compared with the line to its left. On these was first laid off a line, No. 1, to correspond with the table of steam pressures and temperatures. It forms a curve, and it will be noticed at once how much more quickly it rises as the pressure and temperature increase, the same increase of temperature causing a much more rapid rise of pressure at high points than at low ones. Other lines were also drawn, as noted on the diagram.

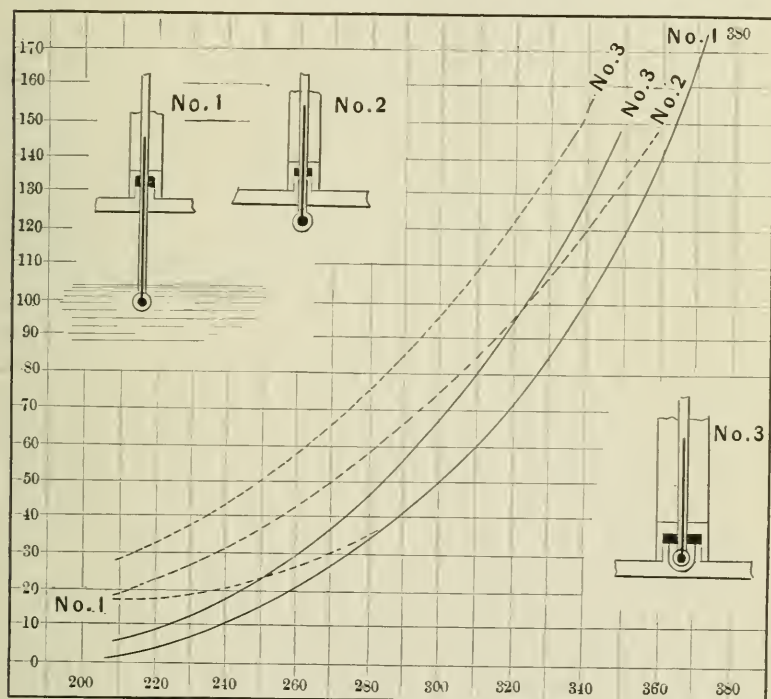


Diagram of steam pressures, and temperatures as indicated by a thermometer immersed in the water of a vulcanizer (No. 1), one exposed in the steam space (No. 2), and a mercury bath thermometer (No. 3). Each curve is numbered in accordance with the thermometer from whose indications it is made. Those made with the air included in the vulcanizer are formed of broken lines; with the air expelled, of continuous lines. Nos. 1 and 2 are identical under the latter condition, and also agree with the table of elastic force of steam given above.

When the vulcanizer was heated without expelling the included air, its expansion by heat operated the steam-gauge, which showed a pressure of

about 14 lbs. at 212° . The air pressure is gradually overcome by that of the steam, and the line gradually merges into the normal line of pressures. These figures are from the long thermometer, the bulb of which was immersed in the water. The short tube with bulb in steam, No. 2, gives 212° at 20 lbs. by the gauge, and its curve, though it gradually approaches the normal line, does not touch it at 160 lbs. This might be expected, as the air forms a less proportion of the atmosphere of mixed air and steam above the water in the vulcanizer as the pressure rises.

The mercury bath thermometer, No. 3, starts at a still higher figure, 27 lbs., and rises more rapidly than the others, being 50 lbs. higher than the normal line at 320° , showing the temperature to be really 350° . These curves, illustrating the action of the thermometers under the influence of the included air, as described above, are shown in broken lines.

When the air is expelled, both thermometers exposed to the action of the steam reach the 212° point before the gauge indicates pressure, and follow the normal line, No. 1, closely as the temperature rises. The mercury bath thermometer reaches the 212° point when the gauge indicates 7 lbs., and its line diverges from the normal line as it rises, so that at the 320° point the pressure is 98 lbs. instead of 75, as in the normal line, showing that it fails to indicate the proper temperature by about 15° . Therefore, if the air is expelled from the vulcanizer the temperature is 320° when the mercury bath thermometer indicates 305° . When we consider the greater rapidity with which heat is abstracted from the exterior of the vulcanizer at high temperatures, by the greater amount of radiation, and convection by air currents, we see why the error of the mercury bath thermometer increases with the temperature. The amount of error differs somewhat with different vulcanizers, according to their construction.

The reason for the apparent variations of the gas regulator is also made plain. The regulator turns down the gas as the desired pressure is attained, while the thermometer may, and in most cases does, fail to receive and indicate the temperature due to the pressure. In this case, the regulator is right and the thermometer wrong. When using a gas regulator, it is not unusual, if there is a slight leak in the vulcanizer, to see the thermometer steal upwards 15° or 20° while the process of vulcanizing is going on; *i. e.*, as the air gradually escapes through the leak, the thermometer comes nearer to registering the right temperature.

It may be laid down as a rule, that when the air is expelled from a vulcanizer, the actual temperature of its interior is, at the vulcanizing point, some 15° more than the mercury bath thermometer indicates, while if the air be not expelled it may be as much as 35° higher than the indication. So that vulcanizing may be done at 355° when the dentist has not the slightest idea that 320° has been exceeded. Bearing this in mind, the reason for certain mysterious appearances of spongy

rubber, which we have all heard of, if they have not fallen to us as an individual experience, becomes sufficiently obvious, and the remedy apparent. In such cases it is only necessary to lower the temperature of vulcanizing, to avoid the difficulty.

In fact, high temperatures have become so much the rule, that but few dentists have the patience now-a-days to vulcanize at 320° . An hour is as much time as can be spared for vulcanizing, and to vulcanize at 320° (which will usually be at 305° with the air expelled) will occupy at least one and a half hours, without including the time necessary to bring the heat to the vulcanizing point. While the mercury bath thermometer is always in error, as shown, it may be said that when the air is expelled, the error is constant in amount for any particular vulcanizer; and so, if due allowance is made for it, the thermometer is as trustworthy an instrument as is needed. A steam-gauge is more sensitive, as it, like the regulator, operates by pressure, and the pressure due to even the slightest increment of heat is felt at once throughout the whole interior of the vulcanizer, while the temperature is, as we have seen, subject to delays in its passage upwards to the thermometer. But it is more expensive, more complicated, and consequently much more liable to derangement than the thermometer, which, from its low first cost, its simplicity and durability, has and will continue to enjoy the preference as a means for ascertaining the temperature of the vulcanizer.

OPINIONS IN REGARD TO ROOT-FILLING MATERIALS.

EXCERPTS FROM VARIOUS SOURCES, COMPILED BY T. G. L.

Dr. A. W. Harlan: A tooth that is saturated with cosmoline will so change color as to be objectionable. Am satisfied that a root can be so filled with gutta-percha that it will exclude all moisture. Thoroughly dry the root with hot air blasts and then introduce eucalyptol, which is diffusible and in which gutta-percha is soluble. After wiping out the excess, pump in chlora-percha, and then take up on a heated instrument a cone of gutta-percha (never heat the gutta-percha) and force it into the root, allowing the excess of chlora-percha to flow out.

Dr. H. J. McKellops: I was one of the first to advocate the use of chlora-percha for filling roots, and I still consider it good practice. I do not think any man can dress out the majority of root canals so that they can be filled with cotton or gold satisfactorily.

Dr. A. E. Baldwin, Chicago, Ill.: Invariably uses a creamy solution of gutta-percha in chloroform, always making an opening into the tooth so as to obtain the most direct entrance to the root-canal. When practicable, he reams out the entrance into it slightly, and then pumps the solution into the canal with a fine broach wound with a few shreds of cotton. He then wipes out and dries the pulp-chamber, places a small piece of heated gutta-percha base-plate over the entrance to the root, and by very gentle pressure on this, forces the canal contents down till he is reasonably sure the solution has reached the apical foramen.

Dr. W. C. Barrett: For many years I used cotton saturated with chlora-percha, but found it unreliable and have now abandoned it for gutta-percha cones.

Dr. J. D. Patterson: In small and tortuous canals I fill with chlora-percha. In making the chlora-percha I use the filling material instead of base plate. In roots having ready access I close the apical foramen with a small plug of gutta-percha, and fill the balance of the canal with oxychloride of zinc, using a small pledget of cotton to force the oxychloride into the root canal.

Dr. F. W. Low, Buffalo, N. Y.: Uses gutta-percha cones, and chlora-percha, except in molars of youthful patients; the pulp-canals of teeth of such patients he fills with a thick paste of carbolized cosmoline, iodol and oxide of zinc.

Dr. G. F. Root, Philadelphia: I dissolve gutta-percha in chloroform to about the consistency of cream, and then with a broach work a little into the canal, and then take one of the gutta-percha points made for the purpose, and insert in the canal as far as the apex.

Dr. J. S. McCleery, Beatrice, Neb.: Invariably uses a solution of gutta-percha and chloroform, pumping it in with a broach that will reach the end of the root.

Dr. A. W. Nason, Omaha, Neb.: I pump in chlora-percha, and fill with gutta-percha points. In those portions of the cavity where I do not wish the chlora-percha to adhere I use glycerine, and this prevents it.

Dr. J. J. Willey, Wahio, Neb.: I can fill better with chlora-percha than in any other way. There are some canals I cannot fill with anything.

Editor Western Dental Journal: But to reiterate what has often been said about the materials in common use, viz., gutta-percha and oxychloride of zinc. Excellent root-fillings can be and often are made with gold foil, tin foil, and amalgams, but in many ways these materials are inferior to the two first mentioned, and in no respect are they superior. As for cotton as a permanent root-filling, we cannot conceive a decent reason for its use—except as a vehicle for the introduction of the oxychloride. Of the two materials, oxychloride and gutta-percha, we give preference to the former.

Dr. Ward: I have had the best success with oxychloride of zinc.

Dr. James Truman: Chloride of zinc answers the purpose more satisfactorily than any agent I have been able to find, but its use requires care. My method is to permanently stop the apical foramen, and then introduce cotton saturated with chloride of zinc, and leave for three or four days; the zinc coagulates the organic material. I fill the roots permanently with oxychloride of zinc.

Dr. W. W. Allport: My practice is to close the apical foramen with oxychloride of zinc, and then fill the root canal with peroxide of hydrogen and allow it to remain a few minutes. I then remove the peroxide and thoroughly dry the tooth with hot air and hot instruments, then fill the root canal with oxychloride of zinc.

Dr. John C. Storey, Dallas, Texas: Has not used, for many years, anything else but oxychloride of zinc. He uses it first, last and all the time.

Dr. Shriver: I am not favorable to chlora-percha. It is too liable to thicken before we get it into place. I use oxychloride of zinc, and insert a wooden point to force the cement into place. The wood and oxychloride make a good root filling.

Dr. Isaac Douglas, Romeo, Mich.: Of all materials that have been tried and recommended for this purpose during the last third of a century, none in my hands has given such perfect satisfaction as gold.

Dr. W. H. Morgan: I stop the apical foramen with a small gold, tin or lead wire, and then fill the body of the canal with oxychloride of zinc and gold. I think oxychloride of zinc best, because it will absorb the gases resulting from the decomposition of the remaining organic fluids and tissues. I do not believe any root was ever perfectly filled with chlora-percha.

Dr. W. H. Dwinelle: I have been filling roots of teeth for fifty years. I fill with gold. I roll the gold into cones on a Swiss broach and carry to the end of canal. I don't think it makes much difference what the material is with which the apical foramen is closed, so that it is perfectly sealed. Do not think wood is a good material.

Dr. G. L. Curtis, Syracuse, N. Y.: Uses chlora-percha so as to be sure to force it to the end of the root. After partially filling the canal with the chloroform solution he takes gutta-percha points and drives them up.

Dr. S. C. O. Watkins: Uses a piece of sheet lead in the form of a cone, pressed up to the end of the canal, and then broken off at a little notch cut around it.

Dr. J. E. Breeding, San Antonio, Texas: Has used lead for filling root canals, and can indorse it emphatically.

Dr. J. N. Goolsbee, Crockett, Texas: Has adopted the practice of filling root canals with tin, and finds that it succeeds well. He believes that the reason is that it "kills the bugs."

Dr. E. D. Andruss, Dallas, Texas: For filling root canals he has used lead and tin points in connection with liquid gutta-percha, but considers that the operation of filling a canal is always doubtful.

Dr. N. T. Shields, Galveston, Texas: Fills root canals with amalgam mixed quite soft. When the foramen is enlarged he uses soft foil No. 3.

Dr. A. A. Beville, Waco, Texas: After cleaning out the canal as clearly as possible, presses a piece of spunk, saturated with camphor and carbolic acid, up to the apex, and then completes the filling.

Dr. D. R. Stubblefield, Nashville, Tenn: Enlarges the canal with enlightened judgment, and then drives a piece of lead into the canal.

Dr. H. E. Beach, Clarksville, Tenn.: Has been filling root canals with lead for fifteen years with gratifying success. There is no other metal with which it can be done so well as with lead. His method is to trim the lead down until it fits accurately a hole drilled through a piece of ivory with the same drill that is used to round up the root canal, dip in any antiseptic—he uses compound tincture of iodine—and drive home. It makes a perfect adaptation.

Dr. Joseph Head: The perfect root canal filling, I hold, is that which thoroughly protects the canal from the entrance of septic matter, and prevents the dentine around the canal from containing germs that may in time work their way into the canal, and that filling material I think I have found. It is “carbolyzed cosmoline upon cotton.”

Dr. W. B. Miller, Altoona, Pa.: Uses sandarach varnish and cotton, and thinks it makes a perfect root filling. A root canal filled with cosmoline is almost sure to cause a discolored tooth.

Dr. S. A. White: Prefer to use long staple cotton, saturated with chlora-percha, and have no difficulty in introducing it into most roots. My favorite method of filling the six front teeth is with a plug of hickory wood, cut around with a sharp knife a short distance from the end, and driving it into the root, and breaking it off where cut. This closes the apical foramen, and the canal can then be filled with almost any material.

Dr. Smith, of Denver: I do not like oxychloride of zinc for root fillings because it disintegrates; gutta-percha is not good because it shrinks; wood is unprofessional and is only used by the backwoodsmen of Indiana.

Dr. F. Y. Clark: If you will fill the apex of a root for a short distance and then fill the crown and leave the tooth for some time and then open, you will find an odor coming from the putrefaction produced by the air germs introduced during treatment. It is almost malpractice to enlarge a pulp canal. If the canal is thoroughly cleansed and disinfected with pure carbolic acid or creosote, no decomposition will take place in twenty years.

Dr. H. C. Victor, Lincoln, Neb.: I find it difficult to fill the roots

with chlora-percha. I cannot pump it up successfully. The instrument passes through the gutta-percha and draws it away. I can fill more thoroughly with fibres of cotton saturated with some of the cements.

THE NEW DEPARTURE.*

BY JOHN C. STOREY, M. D., D. D. S., OF DALLAS, TEXAS.

Desiring to offer a few thoughts on the subject of blood-poisoning, and finding it so inseparably connected with the germ theory, I am constrained to consider them in connection with each other.

Leaving aside, as not coming within the scope of my argument, the vegetable and mineral substances, bites of reptiles and stings of insects, which, on being introduced into the system, poison the blood and destroy life, we consider these, while subtle in their nature, habitants of the atmosphere that enter the system, poison the blood, and cause death.

That there are pathogenic germs from outside sources, scientific investigation seems now able to demonstrate; and the fact that all diseases may have their origin traced to germs, is within the limit of probability.

The promulgation of the germ theory by Koch, followed by Miller and others, opened up a new field of observation—one which invites us with peculiar emphasis to enter and investigate the wonders therein portrayed; and 'tis here, in this field, we must come if we desire or expect to lay aside that impression which has guided us about during the long past, and be enabled to treat diseases in a rational and scientific manner. 'Tis here we find ourselves face to face with the destroyers of the human race, destroyers before whose march armies dwindle into nothingness, and whole cities pass downward into the tomb; and here we must come if we would learn to combat them.

While it is true our fathers told us of atmospheric vicissitudes and malaria as exercising controlling influences on diseases, yet they failed to show in what way the heat and the cold, the wet and the dry weather did exercise these influences, and though they sought in the bilge water of ships, in cesspools of cities, and in stagnant waters of swamps, in fact, in every locality where disease was holding a festival, or had set up in business for the destruction of mankind, yet was atmospheric vicissitudes still inexplicable, and malaria as much a mystery as before; and we continued to treat disease in the same unsatisfactory and empirical manner as our fathers had done before us, giving remedies because others had given them in like affections, and their patients had not died.

* Read before the Southern Dental Association, Galveston, Texas, 1889.

An insight into the germ theory gives us a proper understanding of the different phases which diseases assume, and enables us to treat them with a right intelligence, recognizing the pathonomic symptoms peculiar to each as being produced by a pathogenic germ, which is *sui generis*, and which only produces this particular disease.

The germs, for instance, which produce small-pox, measles, yellow fever and cholera, differ as much from each other in their individuality as do the animals and insects in the visible world.

But whence the origin of the germ? We are still in the dark. That they are the atmospheric vicissitudes and malaria of our fathers there remains but little doubt; and that they pervade the atmosphere of all climes and countries, all lands and localities, is a fact that needs no argument to prove, and from hence are received, or find their way into the system through the medium of the respiratory and digestive organs, as well as through the skin, and once within set themselves about their work and manifest their presence in the forms of that disease which it is their peculiar province to produce.

Who would attempt to say cholera, yellow fever, or any epidemic disease does not have its origin in a germ peculiar to itself? And who would dare say that one entering an apartment where either of these diseases was prevailing was not liable to be attacked, though he might not come near the sick? Who does not recognize the danger of introducing a wounded patient into a hospital where there is one suffering from gangrene? The 19th Louisiana regiment was nearly decimated by erysipelas, in that way.

Nor is this all. These germs are capable of being transported from place to place in the clothing, on the hands, in mail matter, in fact, in almost every conceivable way, they may be transmitted.

Witness the fact that the physician who has the first case of puerperal fever, diphtheria, erysipelas, and indeed of almost any affection, usually has the most of them, and it is no uncommon thing to hear a physician reply, on being asked concerning certain diseases, if he had seen any: "No, I have not had a case, but Dr. B. has had quite a number in his practice." The truth is, Dr. B. got the start, got the first case, and had been planting the seeds around among his patrons ever since.

The introduction of yellow fever, small-pox, scarlatina, our much-dreaded dengue, and many other diseases, into certain localities and at certain times, can be accounted for in no other way.

Again: In wounds and injuries the microbe finds a delightful habitation, and from this point urges his way into circulation, and sets up that disturbance usually denominated pyæmia, to which term I demur, as it does not mean what it says, but which time does not permit me to discuss. But it is a source of increasing satisfaction to know that in the light of

advancing science these cases are growing more and more infrequent and less dangerous, by reason of the antiseptic treatment and microbe killers which are constantly being brought to the minds of the profession ; and it is here, in the treatment of surgical diseases, the treatment of wounds and injuries, and the prompt healing of parts after operations, that this theory has found its warmest advocates.

The certainty with which wounds and injuries can be made to heal without the formation of pus or the intervention of fever, under many operations in surgery is possible, and comparatively without danger, which heretofore had been looked upon with the greatest fears, and which had been undertaken with the most serious apprehension of fatal results.

When general medicine shall have arrived at that point of scientific perfection which surgery seems destined soon to attain, and our *materia medica* shall have undergone a revolution, then will disease be robbed of most of its terrors, and the time that is allotted unto man once to die will come when he is ripe in years, and when the measure of his usefulness is full.

But since these things are not yet, and medical men still give calomel because it acts on the liver, and surgeons apply hot poultices to hasten suppuration, and the microbe seems here to stay, at least for a time, we will glance at him in his most staying attitude—chronic condition. To be satisfied that he is here in that shape, that blood poisoning does exist in a chronic form, we have only to take a stand on a prominent street corner and observe the passers-by. You will note a woman, lank, pale faced, with an anxious look in her eyes, unsteady step, etc. She is looking for Dr.——'s office ; she has heard that he is the man to cure her, and she has been sick long enough ; is getting tired of it, and wants now to be cured.

Next a man, with the same general appearance, with the addition of a boil as big as a hen's egg ; he, also, is hunting a doctor to have the——thing split open and see if he can't get something to take that will stop them ; as this is about the fiftieth one he has had in the last four months, he is getting tired of them.

Now, I dare say there is not a physician in regular practice for a number of years, who has not seen numbers of similar cases, cases that have taxed him to the full extent of his endurance ; cases in which, as he tells the patient, has no well defined disease, only a general debility, and one which demands for treatment an iron tonic, seeing there is a deficiency in red blood corpuscles, and cases which neither an iron tonic or any other tonic will relieve.

Now, if you will stand yourself in front of these patients and take a whiff of their breath, you might well imagine from the odor, that they could speak to you in a dead language. As I heard a boy say once

about a young man who wore dudish clothes and a pale face: "Good gracious! that fellow's mouth smells like a maggot's nest." Now, if you will examine these mouths you will find in them very jungles, a perfect forest of algæ wherein hide animalculæ almost as great in number and variety as the animals which inhabit the jungles of Africa. Press your finger on the gums around the necks of the teeth, and miniature lakes of pus are seen, in which they live, luxuriate and propagate their species, and from these lakes swim forth, make a detour of the system through the blood channels, poison the vital fluid and render life miserable, if not death certain.

That there is such a disease as general debility, or that people have boils just for the fun of it, are matters that admit of serious doubt. They are both from chronic blood-poisoning, though the source may not always be apparent. But I would venture the assertion that the mouth furnishes a more fruitful source than all others combined. There are few mouths in which there is not an exudation of pus from some part or other; about an unerupted wisdom tooth, from beneath deposits of tartar, from abscessed roots, from nasal catarrh—which in many instances is but a diseased antrum caused by the protruding root of a dead tooth—and lastly, and perhaps mostly, from badly-fitting rubber plates.

From whichever source, as before stated, wherever there is pus there is the microbe, and these are they that make up the general debility—produce emboli, from which spring boils and abscesses, renal trouble, exhaustion and death.

To remedy which, remove the cause, prevent a recurrence, put the patient on an antiseptic treatment, and all will soon be well.

While I write this, my mind reverts to many cases coming under my observation in the last twenty years, some of which went the way of all the earth, and others for whom I wrought better than I knew, were restored to vigorous health. I will instance only a few, and cut this long story short:

In May, 1875, a lady consulted me in regard to her teeth, which I found covered with tartar, loose in their sockets, with a free discharge of pus from the gum margins. It is proper to state here that at this time, she was pale, had violent cough, but little appetite, frequent nausea, sometimes vomiting, could not walk one hundred yards without resting; in fact, had given herself over to an early death. I recommended extraction and advised her of the possibilities. Flattered with the hope of recovery, she consented. I extracted her teeth, and put her on an antiseptic mouth-wash. The recovery began at once, and in two months she was able to make me a visit, walking two miles to do so, and to-day there is not a finer specimen of womanhood in Dallas county than she.

Another case: A "posthoc," if not a "protenhoc," a gentleman whose teeth were in about the same condition as those just described; suffered

from abscess, from renal trouble, etc., in fact, was in a bad way generally. Made a complete recovery on having his teeth extracted.

I would not have you understand from the above, that I recommend the extraction of teeth in all instances. Far from it. There are many cases in which, under proper treatment, the teeth may be preserved and the health restored, too. Many such cases might be mentioned, but the above may suffice, lest I prolong this article to wearisomeness. But I will add, that the demand of the present age is a preventive, not a curative treatment of disease.—*The Southern Dental Journal*.

A TRANSLUCENT CEMENT STOPPING WANTED.

BY THOMAS FLETCHER, F. C. S., WARRINGTON, ENG.

“It was once the fashion of a certain class of writers to denounce the use of amalgams as a species of malpractice approaching crime; and dire were the injurious effects ascribed to these substances. The prejudices were based upon impressions which had no scientific foundation, and it is not necessary to again expose their falsity. AN IDEAL FILLING WOULD NOT, HOWEVER, BE METALLIC. IT WOULD BE A CEMENT WHICH, APPLICABLE IN A CONDITION THOROUGHLY PLASTIC AND ADHESIVE TO THE WALLS OF THE CAVITY, WOULD ON SETTING APPROXIMATE TO DENSE ENAMEL. The advances which have been made in the preparation of non-metallic cements, go to show that it is not beyond the power of chemistry to produce such a material.”—*Henry Sewill, M. R. C. S., etc., President of The Odontological Society of Great Britain, in Inaugural Address, delivered February 4, 1889.*

“There is no field in the whole range of dentistry that offers so much encouragement as that having for its ultimate object the production of a plastic filling having the color of tooth substance, the stability of gold, and requiring the ease of manipulation of the cement fillings of to-day. That member of this society (The Illinois State Dental Society) who will produce this filling material, will outrank the greatest benefactor of the dental profession.”—*From the Report of the Committee on Dental Science and Literature, published in ‘The Dental Review’ (Chicago), for June 15, 1889.*

The subject matter of these two quotations has induced me to bring up this serious question once more; but for the benefit of those who desire to take the work in hand, it may be advantageous to set forth from available sources what has already been done in the matter. In *The British Journal of Dental Science* for July 1, 1881, I wrote as follows on “The Endowment of Research in Dentistry.”

“Mr. Whitehouse, in his paper on the above subject, read before the Odonto-Chirurgical Society, evidently knows little or nothing of what

has been done. He suggests that the profession be invited to subscribe to the authorities of the Chemical Society, a sum of £50 annually for three years for the endowment of research into the subject of a possible improvement of white fillings. How much he expects would be done for this is hard to say, but I can tell him that the sum he proposes would not pay one-half the cost of preliminary experiments.

“I have had associated with myself for the last ten years two of the most able, practical chemists I have yet met with. My payment to them for experimental work amounts now to a total of about £500. Seven years ago I gave up ordinary practice to devote myself for three years steadily, to a series of experimental researches on every compound mentioned in the eighteen volumes of ‘Gmelin’s Chemistry,’ noting possible methods for a second and more extended research. This series cost me a small fortune, took me nearly four years instead of three, as I expected, and resulted in disastrous failure, except in the discovery of the practical method to produce the powder now used for the phosphate of zinc cements, which at the time I failed to utilize. An attempt to utilize this was afterwards made by Rowney, which was a practical failure; at all events his preparation appears to have gone out of use.

“I gave up—wearied out and with broken health—a search which I have again commenced, as I believe the required result to be possible. I may fairly say, that for the last twelve or fourteen years my money and my life have been devoted to a research after a good white filling, knowing its value. Can Mr. Whitehouse expect that a series of experiments, such as have been gone through, could or would be printed or reported, or that if printed, anyone except a few interested makers would read thousands of pages of failures, those few readers being the very people of all others whom one would not care to furnish with the information?

“Of all known organic or inorganic compounds, so far as my capacity and knowledge go, I have not missed a single one, nor have I missed any possible variation of a process or material giving a chance of success. It is said that two heads are better than one; but in this case there have been three, and in ten years we have nothing to report so far as the actual attainment of a perfect result is concerned. Starting with a precise knowledge of what was required, I have spent the sum proposed by Mr. Whitehouse twenty times over, and no doubt others have done something if not as much, as myself. At the commencement of the three years’ campaign, I built a laboratory specially and exclusively for experiments in white fillings, with every appliance which could possibly be needed. I have no desire to make public the amount of time and money lost in this search, which is now going on again almost as vigorously as ever, and my only object in doing so is to recommend those who think of subscribing towards the Research Fund either to retain their money for a better use, or to

exceed my own offer which has been repeatedly and publicly made in the chemical world, and which I here make in the dental world, to any one who chooses to take the matter up.

"I will undertake to work out to a practical end any suggestion which has any hope of a good result, providing all apparatus and everything required, at my own cost. On the successful adoption of a permanent white filling fulfilling all required conditions which may result from my experiments and a suggestion which the originator may not have appliances to work out to a successful end, I will either pay £1000 for the sole right to make, or a share in the gross receipts. In any case, I will take the whole trouble, expense, and risk on myself. This is an offer now ten years old, and is a much more practical idea than providing £150 for the use of an experimenter who has no interest in his results.

"The endeavor to stop a probable waste of money must be my apology for publishing matters which are of little general interest, and only concern myself. Personally, I should like Mr. Whitehouse's proposal to be carried out, as it might possibly result in a hint of value to me.

"Successful research in useful matters is already well endowed; unsuccessful research is of little if any value, and may be safely left to take care of itself.

"A perfect and successful white filling means simply a fortune to the discoverer; but the conditions required are so many, and so rarely combined in any material, that the end is apparently far off yet. It is possible that no compound or material either exists or can be produced which will fill all the conditions necessary. I have attained almost all the conditions repeatedly, but failed in some vital point when everything else was right. As an example, I have now a compound which sets so hard within a few minutes, that no drill will touch it, and which under certain conditions offers ten times the resistance to all solvents as compared with the best white filling known. It works well and is in every way faultless, except that, when exposed to solvents and rubbings at the same time, it dissolves away in an unaccountable manner, and therefore the probabilities are that it will fail in the mouth, in a large proportion of cases. A chemist, without practical knowledge, would say this material, which an analysis would show to be identical with ordinary English porcelain or china, had every required property. A practical dentist would probably condemn it as totally worthless."

Again, in the same journal, for January 16, 1882, I wrote—

"Mr. Whitehouse says he does not expect me to view this matter from a scientific or professional point of view. In what the scientific or professional points vary from my own, I am at a loss to understand. I simply called attention to the fact that the matter had already been in the hands of Fellows of the Chemical Society, specially competent and

strongly interested, and that ten times the amount Mr. Whitehouse proposed as a fund, had already been spent without result. To offer such a sum as he names would be a farce, as I know it would not be sufficient to pay for preliminary experiments only, before the actual work could be even commenced.

"There might perhaps be some sense in the proposal if a fund of at least £1000 was forthcoming, and of this fund I am at any time prepared to contribute my share. As a commencement, I now offer £20 towards this fund, if Mr. Whitehouse and forty-eight others will contribute an equal sum each, to make a preliminary fund for the purpose; and if this is not sufficient, I offer another £20 on the same terms. This may neither be a scientific nor a professional view of the matter, but it is a practical one. The question is, whether Mr. Whitehouse and the others are prepared to follow my lead.

"I will do more than either Mr. Whitehouse or anyone else can in the matter, by placing a record of my failures in the hands of any person or persons selected for the experiments, and will give any and every assistance in either time or special apparatus. Whether a perfect filling is or is not found, is commercially a matter of total indifference to myself, and I am quite prepared to be superseded at any time. If Mr. Whitehouse can succeed in preparing better fillings than I do, I shall be pleased to give him every assistance; and if he will give me his views of the professional side of the matter I shall be prepared to take this, if I do not at present do so. I am prepared to place time, money, and experience at the service of any persons who may be selected. What more does he wish?"

Since these letters were written I have retired, beaten, from the contest, in spite of my determination never to leave it until successful. Possibly, Mr. Whitehouse, if he had not been the model of courtesy, would have said that my failure simply and conclusively proved my own incompetence for the work, but in this case the result proved the incompetence not only of myself, but of two other trained experimental chemists, Dr. Louis Schad, of Berlin, and Mr. W. M. Hutchings, of the Freiburg School of Mines, both of whom were associated with me for many years in experimental work, so that I failed in very good company.

The experiments and the hopes of success gradually narrowed in the course of years to a very small circle, and the last two or three years were devoted exclusively to combinations of phosphates of tin with various compounds of alumina and silica, the last and the nearest to success being a pasty neutral phosphate of tin, mixed with a powder containing alumina and silica with a trace of lime and potash, these being prepared chemically pure from their solutions, mixed and fused at a clear white heat into a glass, which was ground up to an impalpable powder. This made a cement which resisted all solvents, both acids and alkalies, in precisely

the same manner as healthy living bone, and offered a greater resistance to all solvents than the enamel of the teeth. It was so close a copy of the natural teeth, that it could not be detected, except by the most minute examination. It withstood all tests in natural teeth for long periods, and yet it failed signally and totally in the mouth; why, I could never discover, and this failure permanently disheartened me.

I still believe that if the filling of the future is ever discovered, it will bear a very close resemblance in composition to my last effort, and that this is the direction in which to search. I acknowledge myself fairly beaten, whilst apparently on the verge of success; but there is no reason why others should not succeed where I failed. The failure of one, or three, or a score of experimenters, is no proof that the required material does not exist; it simply proves that the search is not an easy one.

In conclusion, I may here mention that the offers which I made in the two letters to *The British Journal of Dental Science*, quoted above, have been open for many years WITHOUT ANY RESULT WHATEVER, AND WITHOUT THE RECEIPT OF ONE SINGLE PRACTICAL SUGGESTION. If certain offers are in force for eight years without the slightest effect, it seems useless on my part to renew them, especially as I am not now in a position to undertake any amount of original research in the matter.
— *C. Ash & Son's Quarterly Circular*.

PROFESSIONAL FADS.*

BY WILL H. JOHNSTON.

The subject chosen for my paper this evening is one which I deem especially important to the younger members of any profession and proportionately important to all. I would therefore that it might have been presented to you to-night by one more competent to express in forceful language the convictions born of experience.

A "fad" is tersely defined in the later editions of the dictionaries to be "a hobby," and only in the later editions I think will it be found. It has become, however, so commonly used to express this idea that I presume any explanation is unnecessary.

It is the common thing nowadays to find that our neighbor across the way, the friend whom we meet at the club, at the lodge or in the church, is engaged in some pursuit that may happen to be the fashionable "fad" of the hour. Many of these are amusing, but harmless; some appear to us ridiculous, idiotic even; a few are undoubtedly pernicious. While

*Read before the Brooklyn Dental Society, May 27, 1889.

the fashionable "fad," however, inflicts injury only upon the one who gives himself up to be influenced thereby, the professional man who allows reason to abdicate in favor of some theoretical vagary, and goes about his business with a constant prayer that Providence may send him some one by whom he can prove to the world the honor he confers upon it by living, is likely to answer his own prayers by making a victim of the first innocent that chance drifts within his reach. This tendency it is which greatly diminishes his professional usefulness and makes him in a greater or less degree a menace to the increasing aggregate of human happiness.

A well-known physician of our city, in a brilliant paper read a short time ago before the Odontological Society in the city of New York, spoke of the marvelous progress of modern surgery as evidenced by its achievements in the operation known as laparotomy; but I will venture the assertion that he never considered as among the possibilities the spectacle of a member of his profession performing this dangerous operation two or three times a week, oftentimes apparently for purposes of diagnosis.

I am informed by reputable prescription clerks that there *have* lived in this city physicians of extensive practice who kept in mind three or four stock prescriptions and who seldom allowed themselves to step outside the well-beaten paths. I have heard it hinted by men with equal facilities for gaining information that there are *now* living in our city some who were famous for their "shotgun prescriptions," dosing every important case with all the new and untried drugs in the market.

But while it may be amusing to consider the failings or to laugh at the foibles of others, let us spend a little time in a more profitable way and call attention to some of the "fads" that in the past in our own specialty have barred the path of real progress, and inquire a little into some of the "shibboleths" of the mighty present.

Very many years ago I call to mind a gentleman (perhaps some of you may remember him as well) whose "fad" at that time was the theory that gold was the only substance fit for a filling material. He was a man very positive in his convictions (at least he was very positive in his statements); he had a wonderful command of the language, and could talk longer and louder than any man in the assembly. Gold, he insisted, was the only material that any respectable practitioner ought to think of using when called upon to repair the ravages caused by dental caries. Were not some teeth when first presented for his care so frail that there would be danger of fracturing the enamel in using gold? Not at all. He could condense with an eight ounce mallet any quantity of gold without endangering the frailest wall. Were not some cavities so inaccessible that under the circumstances a dentist would be justified in using perhaps

an amalgam or a —? *Never*. Out upon the man who would so lower the standard of his profession as to consider for a moment the substitution of such a base alloy. But, at least, when called upon to give comfort to the little children, he did not insist upon subjecting them to the ordeal of having gold hammered into their little molars? Yes, always. He gave them to understand that he kept nothing *but* gold in his shop and they must submit to his superior judgment. But, really, he never had any trouble on this score. Under the magnetism of his gentle manipulation, the little children, no matter how timid or how nervous, became his most grateful subjects.

Is the picture overdrawn? Those of you who were in the habit of attending the "conventions" of twenty years ago must have met this gentleman there. Sometimes he represented the East and sometimes the far West, and again he hailed from the South; but I think you will bear me out in the assertion that the gentleman with this particular "fad" generally dominated the assembly and met with little serious opposition.

I remember a little incident that happened about the time when this "fever" was at its height, which made a peculiar impression upon me and which will serve to show the state of the professional mind, during this period, of the leading men in our specialty. It was near the close of an evening's discussion upon the use of gold in broken-down teeth and in difficult cavities, when one of the younger members proposed his conundrum to one of the older and most respected members of the profession something as follows: I would like to ask Dr. X. "If a patient presented herself to him with a cavity upon the posterior surface of a superior wisdom tooth, the pulp not exposed and yet very sensitive, what would you advise?" Dr. X. considered for a moment, and then slowly replied: "If I had such a tooth as that in my mouth, I should go to the best dentist I knew and ask him to prepare the cavity as carefully as he could and then fill it with amalgam." The good doctor did not want to go on record as recommending the use of an alloy, and yet he was too honest to say that in such a supposed case he would advise the use of gold. But all this was a great many years ago. I see that the Odontological Society spent an evening not long since in glorifying amalgam, and copper amalgam at that.

It is not in the nature of "fads" to enjoy long continued popularity, and this one, with its numerous and eloquent advocates, proved no exception to the rule.

One of the most brilliant members of our profession, a gentleman with a sanguine temperament and a sandy complexion, arose in open rebellion at last and proclaimed a new "fad." Instead of gold being the only material fit for the preservation of the tooth structure, he boldly asserted that "in proportion as teeth needed saving, gold was the very *worst*

material that a dentist could use for that purpose." This proposition he proceeded to demonstrate with a logic so unanswerable and an eloquence so captivating that the gold men held their breath, as one does when at the close of a luxurious Turkish bath the attendant turns a faucet and you find yourself under a deluge of cold water. His most telling argument, however, was a pathetic recital of woes entailed upon the human race by those ridiculous men who had insisted upon hammering beautiful gold fillings into every tooth that came within reach of their mallet. But for the painfully evident truth of the deplorable picture he drew, his particular "fad" would never have attained the prominence of a national issue.

Many accepted his theories and practiced them to their future sorrow and humiliation, yet in the terse statement given of his position, that "in proportion as teeth need saving, gold is the worst material with which to fill them," there lies the grain of truth which has destroyed, we hope forever, the pernicious activity of the golden "fad." To-day the men in our profession of the widest usefulness, frankly acknowledge their employment of amalgams, the oxy-phosphates, and gutta-percha, as well as gold, as agents through which they express their best service to their patients. So through the contending forces of these opposing "fads," a proper equilibrium is being established which will add much to the aggregate of our usefulness in the future.

Then I remember meeting somewhere, at sometime, a worthy member of our profession who astonished us youngsters, when asked as to the best method of destroying a badly exposed pulp, by declaring that he never destroyed any. Arsenious acid was probably the best thing to use, but he never allowed anything of the kind to be brought into his office. He believed that the pulp of any tooth might be saved, and he should consider it a case of malpractice to put arsenic on one because he found it exposed. If it was in a healthy condition, there was of course nothing to do but to cap it carefully; if it was sick, treat it until it was restored to health; if it was nearly dead, amputate what had really passed away, restore the rest to vigor and activity, measure carefully the exact distance up the root to the living tissue, and fill up just to there, being very particular not to bring any pressure, etc., etc.

This is what the more irreverent among the boys might term "rot." But there have lived men among us who seriously advocated such a course of procedure, and strange to say you heard his echo at nearly every large gathering of dentists.

Then there was the man who deprecated the use of poisonous drugs, and declared that the best way to destroy the pulp was to shape an orange wood spile as near as possible to the pulp chamber, and with one blow of the mallet drive it up into the root. He declared that it was surprising how insignificant was the pain caused by his method. This gentleman

did not fill many teeth, it was so much more convenient to saw the tooth off, drive in a spile, and fit on a crown. We do not hear much said just now about this short cut to glory, but it may be silently winning its way.

Many similar cases of erratic methods and emphatic claims for superiority, though perhaps less widely promulgated, will be called to mind by those conversant with the progress of societies during the last twenty-five years, but I will not take the time to refer to them here.

Let us turn our attention for a little time to a few of the "fads" which seem to dominate at the present, and which may be the means of leading some of our more optimistic co-laborers out into water that is over their heads. And let me say right here that I believe that any theory to secure wide acceptance must contain the germ of truth which commends it to reason, and it is only when reason seems to be giving way before the enthusiastic pursuit of something new, that it becomes necessary for some one to sound a note of alarm.

In the first place, let us consider "teeth without plates." The past twenty-five years has witnessed the evolution of the "tooth crown" in all its strength and beauty from the old-fashioned "pivot tooth." As we all know, it is not a new invention, and to no one man belongs the glory of its perfection. This I say without wishing to detract from the honor due to any or all those who have labored more or less successfully in this direction. As it stands to-day, it is in my judgment one of the most potent adjuncts of modern dentistry and places within our reach a means of service to mankind that has in the near future the highest possibilities. But now notice, how soon from a good thing a man degenerates into a hobby rider. He crowns a canine root and a second bicuspid, and the first bicuspid having been extracted it occurs to him to attach a third tooth to the crown on either side. The work is well done, and is pronounced a success by the patient. The worthy brother tells of his exploit at the next meeting of his society. A vast field of experiment is opened, and the spirit of rivalry is soon at fever heat. The bridge expands, the span stretches from cuspid to cuspid, from cuspid to molar, until at last some proud enthusiast exhibits to the admiring gaze of some convention a beautiful specimen of workmanship consisting of fourteen teeth which he proposes to cement to two old broken-down molar roots. Now from the time the first span was stretched from canine to second bicuspid, anyone could see that this was a possible thing to do, but is it a good thing to do? I believe that the day will soon come, if it has not already dawned, when these extended bridge builders will look back with mortification upon their particular "fad," and if they are honest repent in sackcloth and ashes.

There is something very fascinating about this "bridgework," especially as its successful completion, like all other works of civil engineering,

betokens a more than ordinary amount of skill ; but will it stand the test of time, and comfortable service? It may be well for some one to make experiments, but when hundreds, with all ideas of reasonable service made secondary to their pride in skillful manipulation, rush headlong after some brilliant "fad," the resultant sum total to the community at large is something awful to consider. The truth is, that "bridgework," even in its more moderate development, has elements of weakness, which in my mind make its adoption in many if not in most cases a matter of very doubtful expediency. The chief among these are its uncleanness and the difficulty attending its repair. The former has been charged against it from the start, and I have examined many beautiful specimens at various times and places, wherein the chief advantage claimed was the precaution taken, by means of which this grave offence would be made impossible, and so that with less than ordinary care they might be kept as clean as the natural teeth. As I looked at them and listened to the proud father growing eloquent over the many virtues of his child, I could not see why all should not be as he fondly wished. I must say, however, that I have never seen a piece of "bridgework," after being worn for three months, which was as clean as the natural teeth in the same mouth. Some of this work was my own, and more was not.

The second difficulty is one which may react more seriously to the dentist than the first, and is the one which may the more certainly bring this work into disrepute, for strange as it may seem, the great majority of people are not as sensitive in the matter of cleanliness as we might imagine, especially if the offense cannot be seen. It is comparatively easy to make the bridge strong, if the span be not too long, but as long as we are compelled to use porcelain teeth we must be prepared to repair a fracture. Not long ago I received a call from a young lady who was in great distress. She said that her home was in one of the great cities of the West, and that she was in Brooklyn visiting some friends. "I had planned," she said, "to remain here three or four days longer, but I shall have to return home at once to have a tooth repaired." I told her, with some pride, that it was quite likely she could find some one in the city of Brooklyn who would be able to make what little repairs were necessary, and thus save her the necessity of returning home sooner than she had planned. I intimated that I thought myself equal to the undertaking if she felt confidence enough in me to let me try. Upon examining her mouth I found a beautiful bridge of six teeth cemented firmly upon two cuspid roots, and the lower half of the left central incisor gone. She informed me that while drinking from a goblet the evening before, some one had playfully hit her elbow, and the edge of the glass had struck the tooth with such force as to produce the condition which I have described.

What was I to do? My pride was all gone and I was perhaps the

most humble man she ever saw, unless it was the gentleman who made the beautiful structure when she presented herself in his office and asked him what he proposed to do about it.

After examining carefully the setting, I had to tell her that I thought I could duplicate the whole thing for her, and I could not promise that any less an operation would be sufficient if I attempted to remove the crowns. I am sorry I did not get the name of her dentist so that I could write to him and get his opinion regarding the difficulties attending this class of work.

After the "all gold fad" had received its death blow by the valiant champion of the "plastics," the members of our profession began to turn their attention to the improvement of the latter, and especially the color of the amalgams. That great improvement has been made in this direction is unquestioned, but during the last few years we have been waking up to the fact that all the progress made thus far along this line has been made at the expense of the object first to be desired, in most cases, namely, the preservation of tooth structure. The tendency of men to run to extremes is again manifest. What were the old amalgams that seemed to produce these better results, and in what did the difference consist? This was a matter easily to be determined, for in the old days the various brands in the market were not as numerous as they are now, and it was soon understood, after attention had been turned in that direction, that those most useful were the alloys containing a small percentage of copper. Now, if a little copper could be used in the amalgam with good results, why not use all copper? The reaction in this direction during the past year is something that would astonish any chemist outside of our profession, and strange to say, the advocates of the use of copper amalgam are found to-day chiefly among the better class of operators. It is hard to account always for the unexpected influences that tend to make any article or practice popular, but as the wide sale of "gold and platina alloys," so-called, was hastened by the opportunity it gave the dishonest to impose a higher fee upon the public under protection of a false reason, so the use of copper amalgam seems to appeal to some, because it antagonizes that very thing which is so distasteful to them. Societies are spending whole evenings in discussing the subject and in praising its good qualities, while few interject a word of caution. I am not able myself to condemn a practice from observation which is so new in our city, but I know that in all other forms *except* amalgam, copper is a dangerous metal to come in contact with the mucous surfaces, because it is so easily acted upon by the various acids. I should especially be fearful of using a copper amalgam in a mouth where the surface kept bright, for I think only the constant action of some acid could produce such a condition of the filling. I would not denounce the use of copper

under all circumstances, but don't ride your hobby too hard, it is possible that after you have some pounds of copper distributed around among your patients that you will regret it.

Just now another "fad" is known as "immediate root-filling." Almost as long ago as I can remember, I call to mind some of the cooler and more thoughtful members of our profession uttering words of caution in regard to over-treatment of pulpless or abscessed teeth, but I am sure that they would to-day find a text for their sermon in their too careless preparation oftentimes, and while no doubt admitting that there were teeth whose roots might safely be cleaned and filled at one sitting, would very earnestly protest against such a practice being urged in all cases. The time will serve to alleviate the more violent manifestation of this fever. I have not the least doubt, though it be at the expense of a long suffering public rather than of those enthusiasts who are inclined to ride their hobbies to extremes.

The last "fad" to which I call attention this evening, much of the literature of which I think in a remote future will be read with mingled feelings of amusement and mortification by some, is the "implantation fad." Far be it from me to assert that a beautiful porcelain tooth with a root made of platina plate or wire can never be expected to become a part of the human frame.

Oh, no; I would make no rash assertions, for this is the age of the telephone, the phonograph and other electrical wonders, and one does not say anything is impossible. Allow me, however, to make a suggestion. Why not have the platina root made of a single wire cut with a good strong thread and make the implantation with a monkey-wrench?

As no operation ought to be made upon the human body without careful thought as to what is best in that particular case, so I believe a dentist is justified in making experiments in which he can have no reasonable ground to hope for success. Our desire for something new is becoming so strong that we appear quite satisfied sometimes if a thing is *only* new. We are in danger of making the mistake of thinking that a motion is progress, forgetting that the boy upon his hobby horse exerts himself tremendously, but makes no advancement.

When men try to "ride a hobby," the result is often the same.—*The Brooklyn Medical Journal.*



HOW CHEAPLY some people value their personal appearance when it comes to artificial teeth! The very best that can be made are but poor substitutes for the natural teeth. It is a remarkable fact that you cannot get a good, first class article for a third or fourth class price. This remark applies to artificial teeth as well as to boots and shoes, or watches and other merchandise.—*Dr. D. V. Beacock, in Dominion Dental Journal.*

MEXICAN DENTAL PATIENTS—THEIR WHIMS
AND FANCIES.

BY VIAGERO.

A few peculiar ideas which the Mexicans have on the subject of dentistry will be found in the following notes. Some of these ideas are not confined to those living far distant from railroads, but are held by many in the capital and larger cities of the Mexican Republic.

Many fear that the artificial substitutes we insert are natural teeth, and even after a minute examination and explanation, they cannot be persuaded to have them inserted until they know positively who the former owner was, and are assured that he did not die of an infectious disease.

In remote towns seldom visited by dentists, Mexicans will insist on having discolored, yet perfectly sound teeth, extracted before the visiting dentist departs, on the plea that these teeth *may* ache when there is no dentist at hand.

The Mexican will frequently draw from his vest pocket two or three teeth kicked out by a horse several years ago, and inquire the cost of having them reset.

The Mexican will always bargain hard for a reduction in your fee, and I have had offered me pistols, cigars, watches, scarf-pins, sombreros and mules in exchange, and in one instance a *young girl* was suggested by her mother as part payment of an account.

Some Mexicans never pay, others think it very hard to part with their money after receiving the work; so unless the dentist desires to work for nothing he must secure a deposit in advance, and the balance when the operation is concluded.

Two months ago I extracted a molar for a young lady who was accompanied by her mother, and as they were leaving without producing the usual fee, I asked for it. "What?" exclaimed the old lady, in great surprise, "Why! we have no money!" I afterwards learned that this family owned one of the largest business concerns in town and was exceptionally well off.

Another old woman (I forgive her on account of poverty), after the extraction, asked "Well, doctor, how much do I owe you?" "One dollar," I answered. "God will pay you two," replied the old lady as she vanished in the doorway. These two dollars have not as yet been paid.

A foreign dentist on entering a strange town, as a rule is generally well received; a Britisher in preference to an American, if his work gives satisfaction; if he praises the country and flatters its people, if he has "nerve" enough to state that he has a mind to become a Mexican citizen, he will get all the practice in the place, no matter should there be a dozen

Mexican dentists in the same town, but should he lose his temper (which is sometimes hard to keep) and fail to humor his patient, the latter will consider himself insulted; and for a foreigner to insult one man (especially in a small town) is equal to insulting the entire population. Should this take place, the best thing for the dentist to do is (as they say in New York) "to make himself scarce," or in other words, pack up and "get."

In Mexico the dentist is frequently called upon to visit patients; he is politely received, and the master of the house tells him, "My house is yours, sir;" he then introduces him to his wife and family, stating that they are his (the dentist's) also.

The dentist has come to extract a tooth for the lady of the house; she is pale and trembling, her features bear what might be called a corpse-comical appearance on account of the clumsy manner in which she has daubed her face with chalk, a universal custom amongst Mexican ladies.

She has prayed, and is now surrounded by her family, her husband lovingly embraces her apparently for the last time, then takes up his position behind the chair and gently places her head upon his breast, the children (generally ten or twelve in number) begin to cry and crowd around their mother, the dentist elbows his way to the chair and removes a small root hanging loosely to the gum, the patient moans, her eyes close, the husband looks anxious, the children cry louder, now and then casting their revengeful little black eyes upon the dentist, servants rush around in wild confusion, carrying towels, water, wash-hand basins, etc.; at last the patient opens her eyes and is again embraced by the husband who hands her over to the maid-servant, and that worthy person gently leads her tottering mistress off to bed. The dentist then receives his fee and retires, the master of the house reminding him that the house is *his*.

Mexicans have a great dread of the operation of tooth-extraction. It is a common occurrence for them to call upon the dentist and ask for a "powder" to place on an offending tooth or root, in order *to rot it away or cause it to fall out of its own accord*. A fortune awaits any dentist who may have such a powder, here in Mexico.

But greater dreads, which make the hair of the Mexican stand on end, are the fears that after a tooth is extracted, he will become blind, his eye-ball may jump from its socket, or his tongue may fall out, and should he be a one-legged patient he fears he will lose the power of the remaining leg.

Frequently the very timid Mexican will be accompanied by his physician in order to assure him that should any such accident occur, he is there to push the eye-ball back into position, or hook the tongue on its hinge again, for not a few are under the impression that the tongue works on a sort of hinge that can be hooked or unhooked at pleasure.

The Mexican physician will stand by and with soothing words endeavor to calm the patient, but before the operation is commenced he will quietly

motion the dentist aside and ask him in a confidential tone: "There is really no danger to the eye, is there?"

When the patient has been relieved of his molar, his physician prescribes a quart of mouth-wash, and several powders to be taken to prevent fever. The medicines are accompanied with strict instructions to keep the blanket wrapped well around the jaws (nearly every Mexican wears a blanket), and be extremely careful not to walk or ride in the sun, bathe or wash himself.

The Mexican has an equal fear of anæsthetics, and as the forceps approach the tooth, he devoutly makes the sign of the cross and calls upon his patron saint to protect him from blindness and death. He must always have "something" applied to the gums before the extraction of a tooth; a little water in a Mexican mouth will be found to give as much satisfaction as any known local anæsthetic. In many cases where nitrous oxide is administered, I verily believe them to have the idea that after the operation the dentist sticks an excavator into their bodies to let the enormous amount of gas they have inhaled escape.

Last December, a Mexican gentleman imparted to me a great secret for the painless extraction of teeth. I have not yet applied it in my own practice, but it may be worthy of attention amongst the younger members of the dental profession. No one who has a secret preparation for the relief of suffering humanity has a conscientious right to conceal it, so here goes.

My informant, a professor of mathematics and calisthenics (so his card stated) said, that the discoverer of this great alleviator was an old woman living near Guadalajara, a relative of his mother, to whom the secret was confided, and from his own mother the professor received it. He also cited the following case in defence of the wondrous liquid used.

Señor G., æt. 43, a wealthy farmer living at his immense hacienda, ten leagues from the nearest dentist, after suffering several days with aching teeth, started off on horseback to have them extracted. On the way he called to refresh himself at the house of the old Mexican lady, and after relating to her in an agonized tone his suffering, the old lady simply smiled, telling to return home, as she had an infallible remedy.

She then gave him a bottle of milky looking fluid to use as a mouth-wash, with instructions to hold some of the wash in the mouth for several minutes before going to bed. She guaranteed the morning would find him toothless, at the same time showing her own edentulous jaws in evidence.

The farmer returned home, used the wash as directed, had a good night's rest, and when he awoke in the morning beheld on his pillow, a little pile of teeth which had left their sockets during the night.

This statement sounding to me like a *ghost story*, I asked the professor if he did not think it would be rather dangerous should anyone by

accident swallow some of this great "bone remover"; would not the patient run the risk of waking up in the morning and finding his own skeleton lying alongside of him? "No, no," answered the professor, "the beauty of this liquid is, that it acts directly on the alveolar process and no other part of the body; it is not my intention," continued he addressing me, "to give the secret away, but seeing you are a particular friend of mine (I had loaned the professor twenty dollars four days previous) and knowing it will aid you greatly in the practice of your profession, I will tell you: it is nothing more or less than—*Suéro*." The professor then took up a Spanish and English dictionary which lay on the table and found the word "*Suéro*," which in English means "Whey,"—the serum or watery part of milk, separated from the more thick or coagulable part, particularly in the process of making cheese.

Had the professor returned the twenty dollars I loaned him, I probably would not have revealed his secret, there may be something in it—who knows?

It only requires some one with a little spare time and courage enough to try it; then a patient must be selected who is desirous of losing all his teeth; should one or two teeth only require removal, I would recommend the use of the rubber dam to protect the sound teeth.

In the majority of cases, where an artificial denture is inserted, the Mexican allows it to remain in the mouth uncleansed until he is compelled to return and have it removed on account of the inflammation caused by the filthy plate.

The use of tooth brushes and dentifrices is little known in this Republic; one patient whom I presented with a box of tooth powder, after having scaled her teeth wanted to know the dose, whether it should be taken before or after meals, and whether it would be better to take it in coffee instead of water.

Tartar of every degree of hardness and color is found in abundance in Mexican mouths, the scaler frequently bringing away pieces weighing one-quarter of an ounce, at a stroke. In these cases, met with in everyday practice, equal parts of tincture of asafoetida and water should be recommended as a mouth-wash—it sweetens the breath wonderfully.

To satisfy the Mexican, his artificial teeth must be nicely made, (if a partial case, no roots or tartar must be removed;) plate very thin, no palate, and above all not to hurt, and be firm in the mouth immediately it is inserted.

If these requirements are met, he pays his money willingly, after taking some old roots out of his pocket which you may have extracted for him or his family, and offers them for sale in order to reduce his bill.

The Mexican has a very bad opinion of the dentist who will persuade him to have a tooth filled, but should he make up his mind to have it

done, he will have amalgam or cement in preference to gold, as it is cheaper; yet in the majority of cases he demands its extraction, being cheaper still.

If our profession called us to work on anything in Mexico, outside of Mexican molars, we could get along nicely in this great Republic, whose people are polite, civil and obliging, although they frequently do not mean exactly what they say, and never keep appointments. Remember, I speak of the majority, not all; there are exceptions, but these exceptions are "few and far between."—*The British Journal of Dental Science*.

DENTAL EDUCATION.

BY DR. G. S. DEAN, SAN FRANCISCO, CAL.

Education is a practical matter. Consideration of practical subjects has two natural divisions or parts—consideration of the end, and consideration of the means. We must first know what we want to accomplish. Then we may proceed to consider the means of its accomplishment.

First, then, the end. What is it which is sought by dental education? Plainly, to make dentists.

What is a dentist? This question, I believe, has never been answered. There are dental colleges in operation in all parts of the country, but we have as yet had no description or characterization of the article which they produce. No criterion has yet been given by which we may judge—may recognize the dentist in the first place, and appraise his dental value in the second.

For our present purpose a criterion is necessary. In order to know the end or object of dental education, we must know what a dentist is. And our knowledge must be clear—definite. It will not do to rest content with saying that a dentist is a specialist in medicine; we must go on to note what a specialist in medicine is. In a word, we need, not a synonymous definition, but an analytical definition.

The dentist is a person who cares for the teeth. I say "cares for" rather than "treats," because a large share of dental effort is prophylactic rather than restorative; and "cares for" embraces "treats," as the whole includes a part. The dentist, then, is a "doctor" in the true sense of the word—a "teacher;" his function is "cure" in the original sense—*cura*, "care." The object of dental education must be to produce such a person—a "doctor," capable of general "care."

The dentist, then, is an adviser. He is a man of the same class as the architect or attorney—a man who does more than merely execute the will of his client—a man who advises by reason of superior wisdom.

Is the dentist only this? No. He is an adviser, certainly; but he is more than an adviser. Dr. Bonwill says that the fundamental principles of dentistry are mainly mechanical. This statement is too strong; but it expresses a truth. The dentist is, like the general surgeon, a mechanic.

An adviser and mechanic—such is the dentist. Such is every surgeon, general and special. But the dentist is, in common with the surgeon, something more; he is a therapist. Even beyond this, the dentist is something; he is something which the general surgeon is not; he is an artist.

Let us rearrange this matter. We have seen that the dentist is adviser, mechanic, therapist and artist, and we have spoken of the last three characters as if they were separate from the first. In fact, however, no separation exists. It is as mechanic, therapist, and artist that the dentist is an adviser, and he can only competently advise through familiarity with the principles of mechanics, therapeutics and esthetics. (Surgical mechanics includes, of course, as its basis, human anatomy.)

But in mechanics, therapeutics and esthetics there are two classes of men. There are those who direct, and those who execute. There are the advisers and the workers. We find the two in the machine-shop; there is the mechanical engineer and there is the machinist. We find the two in the sick room; there is the physician who prescribes, and there is the nurse who applies the remedies. We find the two, less widely separated but still showing some distinctness, in the studio; there is the artist and there is the painter. In some cases the two classes have become so distinct as scarcely to come together at all. The architect advises; the carpenter executes. The navigator advises; the sailor executes. In dentistry, and indeed in other departments of surgery, no marked separation of the two classes has taken place. This differentiation may be one of the great professional advances of the future; but at present the dentist both advises and operates. He is mechanic, therapist and artist, and in all of these capacities he both directs and works; he is, in everything, both adviser and executor.

Such is the dentist. He is both adviser and operator. He is mechanic, therapist and artist. But he is more even than this. As operator, he is mechanic, therapist and artist. As adviser, he is, in addition, necessarily, biologist and sociologist. His advice must be largely based on biological principles; and scarcely less largely must he, in giving that advice, consider social principles.—*Extract from The Dental Cosmos.*

FILLING TEETH WITH ZYLONITE.

BY DR. G. H. FULLER, NORTH TROY, VT.

The July number of the DENTAL ADVERTISER contains an article by Dr. Morgan Adams, on "Filling Teeth with Vulcanite." The reading of the article led me to experiment in the same direction, but using zylonite instead of vulcanite. The cavities and material were prepared and used in the manner recommended by Dr. Adams, with the exception that the zylonite was heated in glycerine.

I inserted six labial fillings of the zylonite three months ago. I examined them recently and found them all perfect, except one. If care is taken in selecting the color to correspond to the teeth, zylonite makes a filling difficult to detect.

THE LUXURY OF PROFESSIONAL LYING.

Perhaps there is no man or set of men who have the temptation to lie put before them as doctors have. They are absolutely urged to lie on certain occasions, and compelled to on others, and they should be equal to the emergency. Again, a doctor is morally bound to lie under certain circumstances. It is his duty, and wherein he fails in that respect he fails to do justice to his patient. In my own experience, I verily believe that I have saved many a life, and prolonged many others, by what I believed at the time was a good wholesome lie.

In the practice of medicine, lying gets to be a luxury. You dote on it. You practice outside so as to perfect yourself, so to speak. You linger lispingly on the words which must and will convey a meaning other than the truth to your patient. Talk about dealing in unvarnished truth with your patients! Why, it is preposterous. They won't stay by you. They will go to a man who tells them a better story. Take consumptives, for instance, and you tell them that they have incipient tuberculosis, and they will travel from Dan to Beersheba to find a doctor who will tell them that it is nothing but "liver complaint"—whatever that may imply. Yes, sir; and they will pay him their money and come home to die on your hands gratis.

Thirty years of active practice has satisfied me—although I started out to be truthful with my patients—that it is not, so to speak, the proper caper, if you want to retain your practice. You must hide the truth in metaphor, or straddle it in medical jargon, but some how or other you must avoid telling the truth. Why. I have known instance after instance

where patients have solemnly assured me that the solid truth was the material they were after, and that they were able to stand it. I say, I have known them, as a rule, to go right off into disquietude and quackery.

Right here comes the luxury of lying. Now, when I speak of lying, I don't mean one of those pestiferous, measly lies that crawl about and do mischief, but a lie grand in its conception, magnificent in its proportion, and colossal in its appointment—a lie of sufficient strength to overcome truth, and, for the time being, make you master of the situation.

Of course, it requires some gall to look a patient square in the eye and tell him what you know to be a point blank lie, but so long as it is for his interest as well as your own, it is a necessity, aye, a luxury.

In this way one avoids all the little unpleasantness which hovers around a doubtful or dangerous diagnosis or prognosis, and you are let off with a slap on the shoulder and a fat fee, which salves your conscience and makes you and the patient feel altogether better.

It has taken me all these years of practice, besides a mint of money, to find out how it is myself, and I don't propose to have the rising generation of doctors grow up thinking that they have to be arch-angels in order to practice medicine successfully. No! What you need is an education, then the necessary amount of gall, and the capability of rolling a lie around your tongue until it comes out sweeter than the truth. Then will your patients stay by you; then will the fees come to you, and children's children will rise up and call you an old blister, allee samee! — *E. B. Ward, M. D., Medical Age.*

THE USELESSNESS OF SO-CALLED MAGNETIC HEALTH APPLIANCES.

The induced current can be produced in an apparatus much smaller and more easily portable than any other current, says Dr. M. Allen Starr, in the November *Scribner*. Hence, whenever such effects as it will cause are desired, it is the one employed as a matter of convenience. Its limitations, however, are many, and hence it is less frequently used for medical purposes than the voltaic current. The fact that this current is induced by magnetism should not be taken to imply that by it magnetism can be made to act on the human body. The most careful experiments have shown that the human body is as completely insensitive to magnetism and as wholly unaffected by it as a piece of rubber or of wood. A person may stand between the poles of the strongest magnet, one which might hold up a ton of iron, without the slightest perceptible effect upon any of the bodily functions being produced. Hence all

so-called magnetic appliances, brushes or combs, disks, belts and magnets have absolutely no curative power whatever. A few of these may, by friction, produce static electricity. Some are so constructed of two kinds of metal that on contact with the skin, whose perspiration is acid, a very weak voltaic current is produced, scarcely sufficient, after several hours, to redden the surface. The majority of the effects produced by such contrivances are due, like those of the static current, to expectant attention rather than to any action of the agents, which careful investigation have shown to be inert.

The writer once demanded of the agent of a widely-advertised "electric belt" some proof that an electric current was produced by it, and suggested that any such current could be detected by means of a galvanometer. This test was objected to, but a little frame holding a dozen pocket-compasses, was at once produced, and the power of the belt, which doubtless contained some iron plates, to attract the needles of these compasses, was shown as proof of the production of electricity in the belt. Probably many who were ignorant of the difference between electricity and magnetism had been deceived by this so-called test.—*The Doctor.*

LEFT-LEGGEDNESS.

At a recent meeting of the British Association for the Advancement of Science, a paper on "Left-leggedness" was read by Dr. W. K. Sibley, who said that Prof. Ball, in "*Le Dualisme Cérébral*," speaks of man as a right-handed animal. Being right-handed, it is popularly assumed that he is also right-legged; but this does not appear to be the case. Standing working with the right hand, there is a tendency to use the left leg for balance. Many people find less exertion in going round circles to the right than in circles to the left; race paths are nearly always made for running in circles to the right. So the majority of movements are more readily performed to the right, as dancing, running, etc. The rule in walking is to keep to the right, and this appears to be almost universal. It is more natural to bear to the right. Of a large number of people from the better educated classes, asked about the existence of the rule, only 67 per cent. males and 53 per cent. females were aware of the rule; the large majority obey it unconsciously in walking. Crowds tend to bear to the right. The left leg being the stronger, it is more readily brought into action; hence troops start off with the left foot; it is the foot which is placed into the stirrup of the saddle or step of the bicycle in mounting; so the left is the foot which a man takes off from in jumping. In the

experiments of Mr. G. H. Darwin, blindfolding boys and telling them to walk straight, the right-handed one diverged to the right, and *vice versa*. From measurements of Dr. Garson of the skeletons of the two legs, in 54.3 per cent. the left was the longer, and 35.8 the right. For measurements of the feet, the author collected the drawings and measurements of 200 pairs, with the result that in 44 per cent. the left was longer, in 21.5 per cent. the right, and in 34.5 per cent. they were the same size. Measurement at the first joint gave 56 per cent. left larger, and at the instep 42.5 per cent. From the table of the figures it is observed that the left foot is more frequently the larger in the male than female sex, and the percentage of feet of the same size is greater in the female. The percentage of the right larger than the left is very constant, whereas the numbers of the left larger and those in which both feet were the same size, are much more variable. Man, being naturally or artificially right-handed and left-legged, tends unconsciously to bear to the right; lower animals, on the other hand, appear nearly always to circle to the left.

MOISTURE-TIGHT GUTTA-PERCHA FILLINGS.

The hint with which Dr. Templeton is credited, as to the use of resin and chloroform varnish, is old; it has been published many years ago, and no doubt is very well known in this country. It is by no means the best preparation for drying a cavity—a solution of gum copal in a mixture of ether and chloroform is far preferable; but the principle is the same in both. The action depends on the peculiar power of chloroform and the lighter ethers, of driving water away from a wet surface.

Both the preparations made by myself, *i. e.*, the carbolized resin and the copal ether varnish, have this property of driving water away from a wet surface, and Dr. Templeton can therefore hardly be credited with the discovery of what has been very well known for many years previously. — *Thomas Fletcher, in British Journal of Dental Science.*

QUACK NOSTRUMS.

We are sorry to find that there is a growing tendency to make use of nostrums put upon the market, about which little or nothing is known of their composition or action. In America, dentists have been flooded with "Local Anæsthetics," warranted to do anything and everything under the sun. Of course the majority of all such things are mere trash, and sometimes worse, for they may contain ingredients which are positively injurious. In this country there seems to be some sort of demand

for secret drugs in the treatment of aching or pulpless teeth, as if we had not already a perfect legion of remedies of which we know their specific action. The demand must exist or the supply would not be advertised. What we protest against is the employment of any drug of which we cannot trace its action, and the encouragement of merely empirical and ignorant treatment. Perhaps no drug of the kind referred to has wormed its way into medical favor with greater persistency than chlorodyne. Everyone pretended to know exactly what it contained, and therefore had the less hesitation in using it. And, lo! now either it or its ghost appears in the official British Pharmacopœia, under the high-sounding title of “tinctura chloroformi et morphinæ.” The following is the formula. long enough to please the most fastidious :

Chloroform,	. . . . .	1 fluid ounce.
Ether,	. . . . .	2 fluid drachms.
Rectified Spirit,	. . . . .	1 fluid ounce.
Hydrochlorate of Morphine	. . . . .	8 grains.
Diluted Hydrocyanic Acid,	. . . . .	$\frac{1}{2}$ fluid ounce.
Oil of Peppermint,	. . . . .	4 minims.
Liquid Extract of Liquorice,	. . . . .	1 fluid ounce.
Treacle,	. . . . .	1 fluid ounce.
Syrup,	. . . . .	A sufficiency.

— *The Dental Record.*

TREATMENT OF TEETH PRELIMINARY TO FILLING.

Several times lately we have removed oxychloride and oxyphosphate fillings from the labial and buccal surfaces of teeth for the purpose of replacing them with gold, porcelain inlays, etc. In most if not all of the cases, we have noticed the general hardness of the margins of the cavities and the walls as well. In many of the cavities the primary object in filling was to protect the teeth until a more favorable opportunity for the insertion of a still more durable filling. Teeth so treated appear to be benefited by this kind of preliminary treatment, even more than when gutta-percha is used as the temporary filling.

Cement fillings are not disturbed in the act of brushing. They are harder, and if properly protected until solidified, they do not leak. Gutta-percha on the contrary, if unskilfully handled, or if it is overheated, or is not properly packed until it is cold, does not so well and thoroughly fill the cavity as an oxychloride or other cement filling. The tooth does not appear to be so sensitive after a few months' wear of a cement filling as it is when gutta-percha is improperly used.

If more teeth were treated in this manner, preliminary to permanent filling, the dentist would get better results, and his client would be better served. Try it, and report.— *Editor Dental Review.*

DENTAL SOCIETY MEETINGS.

FIRST DISTRICT DENTAL SOCIETY—TWENTY-FIRST ANNIVERSARY.

To the Dental Profession: The First District Dental Society of the State of New York, will hold its twenty-first anniversary in New York City, January 14, 15, and 16, 1890, on which occasion every practicing dentist will be cordially invited. Special railroad and hotel rates will be made. Please note date of meeting, and make your appointments accordingly.

All communications should be addressed to the Executive Committee, W. W. Walker, Chairman, 67 West Ninth street, New York City.

THE SPEED OF FISHES is almost an unknown quantity, it being, as Prof. G. Brown Goode says, very difficult to measure. If, says the professor, you could get a fish and put it in a trough of water 1,000 feet long and start it at one end and make it swim to the other without stopping, the information could be easily obtained; but fish are unintelligent, and will not do this. Estimates of the speed of fish are consequently only approximated, and more or less founded upon guessing. One can tell, however, at a glance whether a fish is built for speed or not. A fast fish looks trim and pointed, like a yacht. Its head is conical in shape, and its fins fit down close to its body, like a knife blade into its handle. Fish with large heads, bigger than their bodies, and with short, stubby fins, are built for slow motion. The predatory fishes, those that live on prey, are the fastest swimmers. The food fishes are as a general thing the slowest, and, consequently, are easily captured. Their loss is recompensed, however, by the natural law which makes them very prolific in reproduction. Dolphins have been known to swim around an ocean steamer, and it is quite safe to say that their speed is quite twenty miles an hour; but it may be twice as much. The bonito is a fast-swimming fish; but just what its speed is is not known. The head of the goose-fish is very large—twenty times as big as its body. It moves about very little, and swims at the bottom of the ocean. The Spanish mackerel is one of the fastest of food fishes. Its body is cone-shaped, and is as smooth as burnished metal. Its speed is as matchless as that of the dolphin, and, in motion, it cuts the water like a yacht.

A WISH GRANTED. She—Oh, my tooth aches just dreadfully! I don't see why we cannot be born without teeth. He—I think, my dear, that if you will look up some authority on that point, you will find that most of us are.—*Omaha World.*

LAW HAS its "shysters," medicine its "quacks," divinity its "impostors," but it has remained for dentistry to cheapen itself and depreciate the value of its services to the public.

Fancy a lawyer advertising "best advice only \$9, poorer quality \$5," or a physician, "best prescriptions only 50 cents, common ones 15 cents," or a clergyman, "best sermons only \$5 each, and if two be taken on a Sabbath no extra charge made for attending Sunday School in the afternoon." And yet our daily and weekly papers contain scores of this class of dental advertisements, to the utter disgust of professional and intelligent men and women. Why will dentists pursue this course and shut themselves out of the most desirable class of practice? Surely it is time to put away from us this evidence of "callow youth."

* * * * *

For myself I have no ambition to be ranked as a medical man practicing a specialty. In my judgment dentistry cannot properly be considered as a specialty of medicine. It is true that it is a branch of the healing art, but it has not grown out of medicine; it forms no part of the curriculum of medical schools; it has received no aid from medicine as a profession, though individual physicians have rendered it great service.

Dentistry has developed and grown up outside of medicine and independent of it. It has built its own colleges. It has its own text books, its own literature, its own periodicals, its own societies and associations, and its own appliances. In its genesis and history no closer relationship can be traced than as an adjunct of medicine it covers an important field in the healing art for which medicine had failed to make provision.

Far distant be the day when our societies, our associations, our clinics, shall be abandoned that we may form a section in a medical association. We have done well in the past and may do better in the future. We have made great and rapid progress in the past, and if true and diligent the future holds in store for us still greater advances.

Let us be satisfied to be dentists, and at the same time full of ambition to be skilful dentists, intelligent dentists, scientific dentists, honorable dentists, and the public will not be slow to accord to us all proper respect and all needful social recognition.—*Dr. J. B. Willmott, in Dominion Dental Journal.*

YOUNG AMERICA AND THE FAITH DOCTOR.—A Scranton mother, whose son had toothache, took him to a faith healer. "Look me in the eyes," said the doctor, fixing a fascinating gaze on the weeping youth. "Now your toothache has entirely disappeared. You haven't a bit of toothache about you." "You lie! I have," yelled the boy, with a fresh howl. The mother then took him to a dentist.—*Pittsburg Dispatch.*

THE CRAMPING OF WOMEN'S FEET IN CHINA.—A native Chinese journal, discussing the practice of cramping ladies' feet, says that in 1664 the great and enlightened Emperor Kanghsi issued an edict forbidding it under heavy penalties, and calling upon all local officials to suppress the custom. But four years later, on the advice of the Board of Ceremonies, he withdrew the edict, and left the ladies free to follow their own tastes. The origin of the strange custom seems to be lost in obscurity. In the eighth century of our era the wife of an Emperor of the Tang dynasty is said to have worn shoes only three inches long, and one theory assigns the practice to the fourth century A. D., "when Pan Fei danced before the last of the sovereigns of Tsi dynasty, and every footstep made a lily grow." It is also said that it originated in the tenth century, when a beautiful concubine of one of the emperors "tied up her feet with silk into the shape of the crescent moon, and all the other beauties of the time imitated her." The older poets make no reference to the cramped foot, but sing of the beauty of the snow-white feet of the women of their times, when the foot-gear, when it was worn, was square-toed for men and round-toed for women. The native writer thinks the custom was progressive, and only gradually attained its present pitch. In the two Southern provinces it is universal; but in many places women's feet are of the natural size.—*English Mechanic*.

AS THE SMALLEST number of mankind are rich, and the largest number may be divided into those that are in moderate circumstances and those who are poor, and as all are subject to disease and accident, it follows that a doctor's fees are governed by these conditions. Discrimination in fees is, therefore, constant and necessary; whereas, discrimination in merchandising, if indulged in to any extent, would be ruinous. A doctor's first care is the good of his patient, regardless of his fees. A merchant's first care is his cash-book. A doctor is no more legally bound to give his services for nothing, than a merchant is to give his merchandise; but public opinion—custom which is stronger than statute-law—says that a doctor who can help a poor man, and will not without a fee, has less of humanity than a poor ruffian who robs and maims a rich man, to supply his necessities. Public opinion says, with truth, that it is something monstrous to contemplate a man of liberal education tearing out the bowels of a poor family by taking, for one visit; what would keep them in food for one week: and this is why public opinion calls medicine, with all its specialties, a liberal profession. Public opinion can never be changed by manufacturing, wholesaling, retailing doctors, no more than it can be influenced by professional dandyism.—*John J. R. Patrick, D. D. S., in Archives of Dentistry.*

DEPOSITING METAL.—The process of depositing metal by electricity is not new, but its adaptation to many purposes has lately received attention and it is working quite a revolution in silver goods. The beauty of the work is in the fact that it can be made into any form. The covering of umbrella and cane handles, while quite an industry, is but a small part of what can be done.

The pure silver is deposited directly upon wood, plaster, or any model, and also upon glass, and the result is a beautiful solid silver piece. It is destined to revolutionize all rolled and stamped work. The principal workers in this line are Thomas G. Brown & Sons, Durand & Co., and Jamouneau & Leibe, all of this city. This process has also been applied largely to the making of dental plates for artificial teeth, the metal being deposited directly upon the model and a perfect fit is the result, which is a very great advantage over all other plates. Metal is considered by dentists much more healthy for their patients to wear than rubber, which is poisonous to many, and now that a perfect fit can be guaranteed, it is believed that this process will largely supersede all other kinds of plate. It is thought by the manufacturers that this electro-deposit process is only in its infancy and that there is no limit to its adaptation in the arts.
—*Newark Daily Advertiser.*



CEDAR-WOOD CANAL-POINTS.—Referring to the report in the *Dental Cosmos*, for October, of the last meeting of the American Dental Association, I wish to call attention to a material for root-filling that seems to me far superior to anything mentioned by those who took part in the discussion of that subject. The material is red cedar *properly and thoroughly prepared*.

Having split red cedar into small pieces the size of an ordinary match, or even smaller, place them in paraffine, heated almost to the boiling point. Allow them to fry in this material till all the moisture is expelled and the wax thoroughly permeates the wood. Allow the paraffine to cool, then again raise the temperature sufficiently high to scorch the wood a *very little*. Cool again, then re-heat. The heating and cooling allows the paraffine to thoroughly fill the pores of the wood. My reasons for preferring this material are that the red cedar is almost indestructible, and though a very dense wood, it is also very soft, and when driven into the tooth will adapt itself to the form of the canal. The paraffine renders it impervious to moisture and makes it easy of removal if desired. As a disinfectant and antiseptic I apply chloride of zinc to the walls of the canal previous to insertion of the paraffine cedar.—*James H. Beebe, Rochester, N. Y.*

A BOSTON man, says the New York *Sun*, tells of a scene in a dispensary in that city. There came to the dentist of the dispensary an elderly Irishwoman with her strapping daughter. The mother was urging her daughter to have a tooth pulled, and the latter, after much persuasion, seated herself in the chair. The inquiries of the dentist as to which was the aching tooth brought out the information that none of them were particularly out of order, but as they were both quite positive that whenever a woman bore a child she must lose a tooth, they had thought it best to have a tooth out before it began to decay and ache. "Which one shall I pull?" asked the dentist, much diverted. "Sure," said the mother, "it's yersilf'll be knowin' wich wan'll be achin'. It's her furrust choild, an' the foinest b'y ye iver laid ois on."

RESTORING PATIENTS UNDER CHLOROFORM.—In France, when a patient is under chloroform, on the slightest symptom appearing of failure of the heart, they turn him nearly upside down, that is, with his head downward and his heels in the air. This, they say, always restores him; and such is their faith in the efficacy of this method that the operating tables in the Paris hospitals are made so that in an instant they can be elevated with one end in the air, so as to bring the patient into a position resembling that of standing on his head.

ONE OF THE lawyers for the defense, in the Cronin murder trial now in progress in Chicago, asked that the testimony of the dentist who identified the victim by certain peculiarities of the teeth, and the production of a model of the murdered man's mouth, be stricken from the records, because it was only his *opinion*, the dentist having failed to insert the model in the mouth of the body found, and thus decide by actual comparison. It is needless to add that the judge overruled the exception. — *Dental Review*.

THE NEGRO philosopher, who laid down that "where ignorance is bliss, 'tis folly to be ugly," was not perhaps far wrong. A Maine dentist tells of a man who came into his office and insisted on having a sound tooth extracted—not because he had neuralgia in his face, but because a faith-healer had told him that it would improve his general health to have a tooth pulled. The patient was evidently a *maine-iac*.—*Dental Record*.

THE DENTAL ADVERTISER.

CONDUCTED BY THEO. G. LEWIS, D. D. S.

BUFFALO, N. Y., JANUARY, 1890.

IODOFORM AS AN INGREDIENT OF ROOT-FILLING.

We publish in the present issue a series of excerpts, giving the practice and opinions of a number of excellent and well-known operators in the matter of root-filling. Viewed as an election return, it shows the popular vote to be about as follows: Oxychloride of zinc, 7; chlora-percha and gutta-percha points, 6; chlora-percha, *solus*, 5; chlora-percha on cotton, 1; chlora-percha, lead and tin, 1; oxychloride of zinc and wood, 1; oxychloride of zinc and gold, 1; lead, 4; gold, 2; tin, 1; amalgam, 1; spunk, camphor and carbolic acid, 1; carbolized cosmoline on cotton, 1; sandarac varnish on cotton, 1.

Who shall decide when doctors disagree?

It is curious to note that the materials the most strongly objected to by some operators, and we may say that the objections appear to be well taken, are the very ones most widely used. Oxychloride of zinc is objected to on the ground of rapidly losing any antiseptic action it may possess when fresh, and becoming offensive by absorption of exudations from the surrounding tissues; chlora-percha, from shrinkage, and consequently not being a perfectly tight filling. It may also be said of chlora-percha that although it may be incorruptible, it certainly possesses no antiseptic properties whatever.

It is also curious that not one among the large number of authorities cited makes the slightest mention of Iodoform as an ingredient of root-filling. The writer has taken occasion before to call attention to its uses for this purpose, and to its value. Pulpless teeth, the root canals of which were filled with oxychloride of zinc, were found to give slight annoyance at times, and when opened, the root-fillings were offensive; some more, some less, but all unmistakably so. Similar teeth in the same mouths treated with Iodoform retained their health, and when opened after three or four years of service were found to be without change so far as the root-filling was concerned. It had not changed in appearance and the characteristic odor of Iodoform was as perceptible as at first.

We believe that no one giving this substance a fair trial as an ingredient in root-fillings will afterwards willingly relinquish its use. There are

so few opinions in print concerning its use in root canals, that we would be glad to hear from those who have had experience with it.

In this connection the following recipes communicated by Dr. R. D. Pedley to the *Journal of the British Dental Association* will be found useful. While the writer has used only the first one, he can unhesitatingly commend them from what he knows of the good qualities of the drug.

Iodoform Paste.—Oil of eucalyptus, 20 minims; oil of cloves, 30 minims; creosote, 100 minims.

Into this gum mastic is dissolved to saturation. After filtering through cotton wool the solution should be incorporated with iodoform until the whole becomes a solid mass.

This preparation is always moist and (used with wisps of cotton) is a good permanent root-filling for chronic dead teeth, and forms an excellent capping for exposed nerves under a concave disc of metal.

Iodoform Cement.—Iodoform in fine powder, and strong tincture of benzoin; mix into a thick paste.

This preparation should be kept in a wide-mouth stoppered bottle to prevent evaporation.

When mixed with fine cotton on a glass slab it forms an excellent root-filling for healthy teeth, and sets quite hard. It can also be used as a floor in very sensitive teeth under a metal stopping.

Iodoform Points.—These consist of thick floss silk or cotton thoroughly saturated with iodoform cement, and when dry cut into short lengths and put by for future use as permanent root-fillings.—G. B. S.

A NEW OBTUNDENT.

A dentist in Iowa has recently patented a dental anæsthetic, or obtundent, which consists in compounding five grains of crystallized muriate of cocaine, six drops of chloroform, six drops of staphisagria, three drops of oil of cloves, and three drachms of water. These ingredients are thoroughly mixed and produce a volatile fluid, and can be applied locally and hypodermically for all the purposes for which an anæsthetic is adapted. To prevent pain in the extraction of teeth, five minims of the anæsthetic is injected into the gums on each side of a tooth before applying the forceps. It is stated that the addition of staphisagria greatly improves the compound as an obtunder.

Staphisagria is a compound Greek word signifying “a grape, or vine,” and “wild,” and it is supposed the drug mentioned above is delphinium (dolphin) staphisagria, the systemic name of stavesacre. The seeds have a disagreeable odor, and were formerly given as a cathartic, but their use

has been discontinued, owing to the violence of their action. It is now chiefly used in powder to destroy lice and other insects; hence, by the vulgar it is called "louse-wort." We have had no experience in the use of this anæsthetic, but judge that a louse-wort squirt might assuage the pain in the tissues surrounding a departing molar.

THE DEDICATION OF THE MEHARRY DENTAL AND PHARMACEUTICAL BUILDING.

The new dental and pharmaceutical building of Meharry Medical College, Nashville, Tenn., was dedicated November 20, 1889. Addresses were delivered by W. H. Morgan, M. D., D. D. S., dean of the dental department of Vanderbilt University, ex-President Rutherford B. Hayes, ex-Postmaster-General D. M. Key, Rev. J. C. Hartzell, D. D., corresponding secretary of the Freedmen's Aid and Southern Education Society of the M. E. Church, and others.

The building is constructed of brick except the first story, which is stone. The first story contains a dental laboratory and a chemical laboratory; the second a dental infirmary, a waiting room, and two rooms for pharmacy; the third and fourth stories are occupied by an amphitheatre capable of seating two hundred students, with a skylight over the operating table; there is also a room for patients, a faculty room and a museum.

This school of dentistry, organized for the education of colored students, has been in successful operation three years, and is a member of the "National Association of Dental Faculties," and its diplomas are recognized by the "National Association of Dental Examiners."

AN EXPLANATION WANTED.

EDITOR DENTAL ADVERTISER:

The October number of the *Odontographic Journal* contains an "Open Letter" that I've been trying to sift ever since it came out, but I can't see the "pint." Have you been able to grasp the meaning? Is it a *goak*—I thought I could tell one when I saw it—or has Line "got 'em!" The thing uses type enough to have some fun in it, but blessed if I can catch the spirit. If you can solve the problem I wish you would and lift the load that presses so heavily on my

VEST POCKET APPOINTMENT BOOK.

Kan-Sass-Town, December 14, 1889.

A SPECIMEN LETTER.—HE TRUSTED IN GOD, BUT DID NOT GET THE GOODS.

August
the

Der Sir

31—1889.

in Layen my Case bee for you I sapollo you will think it strange but never the Less it is true I Am A young man 21 years of age I With in my self started in the Woreld aloen With Out any help from any One my father and mother both Died Whin I Was seven years of age And I had to Work and studdie hard until I goot to bee an L D S but in the Mentime somthing Whitech Comes to every man I Was taken Sick about too months ago and have Lost my helth So that I am not abel to Practice noW I am going to ask A favor of yo trusiting in God that you will AnCer to it I Want to Start into A Dental Depot But Oean to the fact that my Sicknes has taken my money I have but Little Left and A lone in the Woreald it is Hard Enough but I trust that you Wil ancer to my request I Wish you—d Send me by male A Supply of gods in Acme Cement And Lawrences Amalgam And What you Could male to me and as much as you Could and alow me to Sel Some of your Teeth. now if you Will Onely but Do this And Alow me A Proffet On them So that I Can Tripel the Proffet that I make on them Shall be for your beenifet for I Shale by your Goods With them I have uesed LawRances Amalgam in all my Practice and your Teeth And it Always give good Satisfaction Now I trust in God that you Will ancer to this and mail me A Suppely of goods Please Send them as soon as Possibal So that I Can get in bissnes And in the futer I may bee prosper and Do as mutch for you

Please Ancer to this

As soon As you get it I trus in God yo Will never Lose Any thing by it

yours truely

———— L D S

CRITICISING OPERATIONS.

Dentists should be very careful about criticising the operations of others. It is fair to presume that he does what he thinks best for the patient, and we cannot know the modifying conditions under which he operated. We should at all times extend to others that charity we would ask for themselves.—*Dr. Henry Fisher, St. Louis, Mo.*

With all deference to the exchange from which we copy the above, we do not believe that Dr. Fisher expressed himself so ungrammatically. If

he did, we will extend "that charity we would ask for *themselves*," and wink at the blunders. Notwithstanding the carelessness of the reporter, the remissness of the proof-reader, and probable oversight of the editor of the journal from which we make the extract, there is much in the bungled paragraph that ought to be considered a "golden rule." We know of an instance where a fellow-practitioner expressed his opinion that any dentist who would use all-gold crowns on bicuspid teeth ought to be sued for malpractice. We are the malfactor, and are waiting for the suit to commence.

"THE RECORD," a journal conducted by the Students' Society of the New York College of Dentistry, has commenced its second year. It is a readable journal and worthy of being sustained. It would be a graceful act for the profession at large to subscribe for this enterprise—which has advanced beyond an experiment—if only to keep posted as to the doings of dental students, and aid a worthy project. The subscription price is \$1.00 for the season. Remittances can be sent to Franklin N. Davenport, 245 East Twenty-third Street, New York.

THE ZOÖLOGICAL SOCIETY, of London, Eng., now possesses a white peacock. This bird preserves the markings which distinguish the species, particularly the large eye-like spots on the tail feathers. The effect of these spots is remarkable. They are exactly like the pattern on a damask tablecloth. There is at present quite a large number of Albino animals in the gardens. Besides the peacock there is a white mole-rat, from Cape Colony, and a white monkey.

MUNN & Co., publishers of the *Scientific American*, have just issued a book entitled "Experimental Science," by George M. Hopkins. The book treats on the various topics of physics, in a popular and practical way. It describes the apparatus in detail, and explains the experiments in full, so that teachers, students, and others interested in physics may readily make the apparatus without expense, and perform the experiments without difficulty. The aim of the writer has been to render physical experimentation so simple and attractive, as to induce both old and young to engage in it for pleasure and profit. The amateur electrician will here find simple instructions in the measurement of resistance, and of electromotive force and current strength; the best arrangement of batteries; the construction of dynamos and motors. He will also find the principle of the dynamo, the telephone, and other electrical machines and apparatus fully explained. The work is said to be the most thoroughly illustrated ever published on experimental physics.

IT SEEMS that they filled teeth in Job's time. I find the following in Job, 29th chapter, 17th verse: "And I break the jaws of the wicked, and plucked the spoil out of his teeth."—*Fuller*.

THE NATIONAL MAGAZINE for December contained an interesting article by Prof. Schele de Vere, of the University of Virginia, entitled "A Chat about Numerals," giving many curious historical facts. Quite a noteworthy contribution to the poetic literature of America is "The Nativity; a Christmas Carol," by F. W. Harkins, Chancellor of the National University of Chicago, whose Shakespearean essays are continued in this number. "The University Extension System of England" proves a timely article; being supplemented by a description of a benevolent society for similar work lately organized in Chicago with headquarters at 147 Throop street, called "The University Extension and Home Culture Society." This scholarly magazine is the cheapest of our monthlies, being only \$1.00 per year. Sample copy 10 cents. Published the first of each month by the National University of Chicago, whose novel teachings by mail are described in this number.

A SUIT BROUGHT by the S. S. White Dental Manufacturing Co., against the Canton Surgical and Dental Chair Company, was decided by Justice Cox of the Supreme Court of the District of Columbia, on September 23, 1889, in favor of the complainant. The suit was for an infringement of certain patents for improvements in dental chairs. Judge Cox finds that both the Morrison and Wilkerson patents were infringed by the Canton Company, but that the infringement claimed under the Newbrough patent does not exist.

IT IS STATED that by means of an improved microscope made by Seibert, of Wetzlar, the internal structure of the anthrax bacillus can be made out. This consists of a series of pearl-like corpuscles, which can be plainly seen to undergo division. The magnifying power of the microscope is said to be 2,250 diameters.

THE AMERICAN ACADEMY OF MEDICINE is endeavoring to make as complete a list as possible of the Alumni of Literary Colleges, in the United States and Canada, who have received the degree of M. D. All recipients of both degrees, literary and medical, are requested to forward their names, at once, to Dr. R. J. Dunglison, Secretary, 814 North 16th Street, Philadelphia, Pa.

MR. FREDERICK DAVIS, B. SC., recently read a paper before the Chemists' Association of London, on Bacteria. Mr. Davis gave a lucid explanation of what is known of bacteria, and referring to antiseptics gave the first place to mercuric chloride. Next to that his own experiments led him to place chlorine, permanganate of potash, salicylic acid, carbolic acid, and boracic acid. Iodine and bromine he finds to be active germicides.

Speaking of the pathogenous bacteria, Mr. Davis said: "I take it, then, that the connection between bacteria and disease is such as to prove that really a ferment is produced in the surrounding media—in fact, an animal alkaloid is generated, and that this alkaloid is really the cause of the specific disease, and not actually the bacteria, but that we must rather look upon the bacteria as a means to produce certain fermentive results."

BRIDGE-WORK.—Dr. King says: I have removed bridges that had been put on by the very best bridge-builders, and in regard to cleanliness, I have actually been obliged to hold my nose during the removal. The odor in some cases is unbearable. Besides this, we often have peridental inflammation resulting from irritation in wearing bridges. I advocate removable bridge-work.

THE LOUISVILLE COLLEGE OF DENTISTRY (Dental Department of Central University, Louisville, Ky.,) will begin its fourth session on January 14, 1890. The session ends June 17, a term of twenty-two weeks. Students will not be received later than February 3, 1890, for this session.

ARTIFICIAL TEETH are many times made to appear more natural, or at least their artificial appearance is disguised, by inserting gold fillings judiciously. This is often a laborious operation, and if large fillings are desired the porcelain teeth are weakened in drilling the cavities. For some months we have been using imitation gold fillings on our artificial work, made by Wm. R. Hall & Son of Philadelphia, Pa. The first fillings made for us were not quite satisfactory, as the gold was too thin and porous, and was merely on the surface of the tooth. After several months of experiments by the inventors, this defect has been remedied by grinding shallow cavities in the tooth and filling with pure gold, which is afterwards burned in, stoned and polished. The finished product is a perfect imitation of a gold filling, with a clearly defined outline, and so far as we have been able to observe, with good wearing qualities.

BOOK NOTICES.

A PRACTICAL TREATISE ON MECHANICAL DENTISTRY. By Joseph Richardson, M. D., D. D. S., Emeritus Professor of the Principles of Prosthetic Dentistry in the Indiana Dental College; formerly Professor of Mechanical Dentistry and Metallurgy in the Ohio College of Dental Surgery, etc. Fifth edition. Revised and enlarged, with 569 illustrations. Philadelphia: P. Blakiston, Son & Co. For sale by Buffalo Dental Manufacturing Co. Price, cloth, \$4.50.

It is quite gratifying to one whose taste inclines to mechanical dentistry—or perhaps we should say, prosthetic dentistry—that books on this special branch of the art are in demand. This fifth edition followed so closely on the fourth that we were a little suspicious that it was but a reprint of the fourth, with perhaps a new title page. But by comparison, page by page, with the preceding edition, we ascertained that much of the old matter had been re-set, new matter and cuts added, and that it is, as stated by the publishers, really a “revised and enlarged” edition.

The principal addition is that of descriptions of the more or less perfected systems of bridge-work and root-crowning. This addition seems, and is, an absolute necessity in view of the growing popularity of this method of modern artificial substitutes. While there is much to praise in this edition, we hope in subsequent editions a further elimination will be made as regards several obsolete vulcanizers, flasks, celluloid presses, etc. It is, however, as it stands, a wonderfully useful book, and the best of its series.

THE OPEN COURT PUBLISHING COMPANY, of Chicago, announces the immediate appearance of the authorized translation of M. TH. RIBOT's “PSYCHOLOGY OF ATTENTION.” The monogram of M. Ribot, who is now Professor of Experimental and Comparative Psychology at the Collège de France, and Editor of the *Revue Philosophique*, has been characterized by a prominent French critic as the most important production of the French philosophical press for the present year.

 BOOKS RECEIVED.

CIRRHOsis OF THE PANCREAS; OR PANCREATIC ANÆMIA. INFANT FEEDING. OBSERVATIONS IN VIENNA, THE GENERAL HOSPITAL, BILROTH, CARL BRAUN, BANDL, AND OTHERS. OBSERVATIONS IN CHIARA'S CLINIC AND THE HOSPITAL ST. MARIA NUOVA, FLORENCE, ITALY. THE INFLUENCE OF SEWERAGE AND WATER POLLUTION ON THE PREVALENCE AND SEVERITY OF DIPHTHERIA. RETAINED DEBRIS AS ONE OF THE CAUSES OF PUERPERAL FEVER; THE INTRA-UTERINE DOUCHE AND CURETTE. THE TREATMENT (NOT PREVENTIVE) OF PUERPERAL FEVER. THE RESPONSIBILITIES AND DUTIES OF THE MEDICAL PROFESSION REGARDING ALCOHOLIC AND OPIUM INEBRIETY. CEPHALEMATOMA OF THE NEW-BORN. ANTISEPTIC OBSTETRICS. All by Charles Warrington Earle, M. D., Professor Diseases of Children, Woman's Medical College, Professor Obstetrics, College Physicians and Surgeons, Chicago.

HIGHWAY IMPROVEMENT. An address by Col. Albert A. Pope, of Boston, before the Carriage Builders' National Association, at Syracuse, N. Y., October, 1889.

TRANSACTIONS OF THE INDIANA STATE DENTAL ASSOCIATION. Thirty-first Annual Meeting, held at Indianapolis, June, 1889. Published for the Association by Mr. W. W. Herriott, Indianapolis, Ind.

TRANSACTIONS OF THE ODONTOLOGICAL SOCIETY OF PENNSYLVANIA, 1886, 1887, 1888. Through Dr. Ambler Tees, Secretary, 548 North 17th street, Philadelphia, Pa.

TRANSACTIONS OF THE AMERICAN DENTAL ASSOCIATION, at the Twenty-ninth Annual Session, Saratoga Springs, N. Y., August, 1889.

DENTAL PATENTS.

ISSUED FOR THE QUARTER PRECEDING THE DATE OF THIS JOURNAL.

- 411,449—September 24, 1889.—DENTAL VULCANIZER.—Josiah O. Keller and David D. Weisell, Fort Wayne, Ind.
- 411,461—September 24, 1889.—DENTISTS' BENCH BLOCK.—Edwin R. Magnus, New Britain, Conn.
- 411,538—September 24, 1889.—DENTAL PLATE.—John J. Stedman, La Porte, Ind.
- 412,025—October 1, 1889.—PNEUMATIC OPERATOR FOR DENTAL PURPOSES.—Frank L. Eager, Meriden, Conn.
- 412,225—October 8, 1889.—TOOTH-PICK.—James Adair, New York, N. Y.
- 412,812—October 15, 1889.—DENTAL MATRIX.—George M. Weirich, Philadelphia, Pa.
- 412,920—October 15, 1889.—DENTAL ENGINE.—John Hood and Stephen H. Reynolds, Boston, Mass.
- 413,001—October 15, 1889.—TOOTH-CLEANING IMPLEMENT.—Joseph A. Walsh, Philadelphia, Pa.
- 413,156—October 15, 1889.—DENTAL CHAIR.—Basil M. Wilkerson, Baltimore, Md.
- 413,376—October 22, 1889.—METHOD OF LINING DENTAL PLATES WITH GOLD.—Eli T. Starr, Philadelphia, Pa.
- 414,353—November 5, 1889.—DENTAL MALLET.—William E. Wells, New York, N. Y.
- 414,995—November 12, 1889.—ARTIFICIAL TOOTH CROWN.—Cassius M. Richmond, New York, N. Y.
- 415,307—November 19, 1889.—DENTAL CHAIR.—Thomas J. Carrick, Baltimore, Md.
- 415,495—November 19, 1889.—DENTAL PLUGGER.—Benijah S. Byrnes, Memphis, Tenn.
- 415,594—November 19, 1889.—DENTAL IMPRESSION CUP.—George M. Weirich, Philadelphia, Pa.
- 415,788—November 26, 1889.—DENTISTS' MOUTH MIRROR.—George F. Pease, Springfield, Mass.
- 415,829—November 26, 1889.—TOOTH REGULATOR.—Edward H. Angle, Minneapolis, Minnesota.
- 415,983—November 26, 1889.—DENTISTS' BURR DRILL.—Eli T. Starr, Philadelphia, Pa.
- 416,401—December 3, 1889.—TOOTH BRUSH.—Belle V. Cushman, New York, N. Y.
- 416,426—December 3, 1889.—DENTAL TOOL.—Gideon Sibley, Philadelphia, Pa.
- 416,427—December 3, 1889.—FLEXIBLE SHAFT.—Gideon Sibley, Philadelphia, Pa.
- 416,989—December 10, 1889.—DENTAL INSTRUMENT.—Lyman C. Bryan, Basle, Switzerland.

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COAL GAS IN THE LABORATORY.*

BY THOMAS FLETCHER, F. C. S., WARRINGTON, ENGLAND.

Taking the uses of coal gas in systematic order, we commence with the supply of hot water for taking impressions other than plaster, and we must take into consideration the fact that the general demand for hot water in the laboratory is very irregular, and the required temperatures vary greatly. The various requirements can be supplied, provided a reserve of boiling water is always at hand, but this is not only an unnecessarily expensive luxury, but there is a liability to intervals when no boiling water can be obtained. I do not consider the many forms of water-heaters in which a supply of several gallons of boiling water can be kept automatically boiling, as they are excessively wasteful of gas and cause a constant steam in the laboratory. We may take it that only two forms of apparatus will fill the requirements, the least satisfactory of the two being a rapid boiling kettle, the bottom of which is covered with solid studs. This will do the required work, but it entails some minutes' waiting, often at inconvenient times. The other so completely fills all

*The Midland Counties Branch of the British Dental Association paid a visit to Warrington on Saturday, February 1, 1890. The members were received in the Art Gallery by Mr. John Taylor and Mr. Thomas Fletcher. Afterwards a Council meeting was held at Mr. Fletcher's residence in Museum Street, and several of the members took advantage of their visit to Warrington to make an inspection of that gentleman's works, which afforded them not only instruction but pleasure. Reassembling in the Art Gallery, a short time was spent in an inspection of the pictures on the walls, and when the members of the Council arrived, all sat down to an excellent knife and fork tea in the Museum lecture room. After tea the President said the members desired to thank Mr. Fletcher and Mr. Taylor for the kind manner in which they had entertained them that day. The usual business meeting followed, during which Mr. Fletcher read the above paper on "Coal Gas in the Laboratory," illustrating it with numerous experiments which were witnessed with much interest.

requirements that we need look no further. It is a small horizontal water-heater, which can be connected to the ordinary water service, and which will give, in a few seconds after lighting the gas, a steady stream of water at any temperature required, from luke-warm to boiling, depending on the speed at which the water passes through the apparatus. This covers not only the softening of the modelling composition or wax, but also the next stage, *i. e.*, removing the composition from the plaster.

Drying models is the next process, and for this we take one of the laboratory burners with the upper cylinder in position. This, with the gas turned to its lowest point, gives a steady current of warm air surrounding the plaster, which rapidly and safely dries over the flame. The same burner, with the cylinder removed, is useful for heating either alum solution, resin mixture, or any other composition used to harden the plaster.

Casting dies may be now considered, and here comes in the ladle furnace for zinc melting. This will melt seven pounds of zinc or alloy in fifteen minutes, giving time to prepare the sand moulds. When the zinc gets thick and unsatisfactory the same ladle furnace is used to heat it to dull redness, when a tablespoonful of strong hydrochloric acid thrown on it whilst stirring with a stick or an iron rod will instantly render the zinc perfectly fluid and equal to new metal. Lead or tin for counter dies can be prepared with the same furnace in about eight minutes, or less; and this brings us to the treatment of the plate.

Plate is usually made from cuttings, sovereigns, and necessary alloy. How simple a matter this is, I will show you by melting and pouring in two or three minutes a three-ounce ingot in the blow-pipe ingot mould. The scrap, of course, is boiled in nitric acid before melting, using an enameled iron cup or bowl, and for this the laboratory burner is again used, without the cylinder. Bands entail a little more time and trouble. Well, take the filings and boil them in an enameled cup in about three times their weight of strong nitric acid until about half the acid is evaporated, stirring occasionally with a glass rod to ensure the whole of the filings being acted upon by the acid. They are then thoroughly and repeatedly washed with boiling water until perfectly clean; the washings from this will go into the bench sweep, and the cleaned filings must be put in a crucible and melted in the injector furnace into a button, which, when set, is again melted in the blowpipe ingot mould, and made into an ingot. This ingot contains not only filings of gold, but platinum pins, and the resulting plate is hard, elastic, and singularly well suited for bands and springs. The boiling down is not a sweet operation, and must be done under a chimney or a stench closet, and, failing these, out of doors. Mr. Taylor has kindly prepared some of his filings, which I will now melt into a button in the furnace.

I will not waste your time by showing you again the process of making an ingot, but you may take it for granted that this button will roll into a sound perfect plate without the slightest doubt, if my own and Mr. Taylor's experience for many years may be taken as a guide. If a large proportion of platinum is contained in the filings, it may be advisable to add about one-fourth of 22-carat gold or soft plate scrap to prevent excessive hardness. * * * Dental alloy is used, and the scrap, so far as my knowledge goes, is a nuisance. I never succeeded in melting it properly and making a satisfactory plate. If anyone can tell me how to do it I shall be very pleased to know that someone has had more skill in this matter than myself.

Having prepared our pattern lead, plate, and band gold, we come to striking up, and the annealing of the plate is done with a blowpipe. Blowpipes are a tender subject; it matters little how bad a blowpipe is, if its user knows it well and can do good work with it; give him one a hundred times better, and he will probably fail to do decent work with it until he has had experience and spoiled something. Speaking for myself, I consider the hot blast blowpipe with bench light the most perfect apparatus for dental work. Many will agree with me, many will not, and I leave the matter open for each to use the blowpipe he can do the best work with. Some little disturbance has been made by the proposal to use compressed nitrous-oxide for blowpipe work; this, in my opinion, is a serious mistake. The ordinary blowpipe has ample power for any possible requirements, with the advantage of simplicity and low cost in use, and you all know the care required even with the ordinary blowpipe to prevent fracture of the mineral teeth or fusion of pins. If anything of the kind is at all desirable we may safely take the compressed oxygen blowpipe in preference, the gas being less than one-fourth the cost, and fully twice as powerful for blowpipe work. If we need the extra power it can be got cheaply by the use of compressed oxygen. My contention is that it is totally unnecessary, and is distinctly risky in use. Before soldering, however, we have to get our cases in the loam and dry them. Once more comes in the laboratory burner without the upper cylinder, and I have here a new little appliance which is useful in getting up heats for soldering. It is simply a little dome of porous fireclay, with a handle, and is used as a cover for the work on the burner; it assists so greatly that little labor is needed to get up the final heat for soldering.

Vulcanizing.—In this work we have great need for coal gas as a fuel, our wax sheets need warm water for rolling and softening, and on this point one important matter may be mentioned. When wax has been used for a time it becomes dirty and unsatisfactory to use; the dirty wax should be placed in a bowl with an equal bulk of water, and the whole heated until the water boils. If this is allowed to stand until cold, the

contents of the bowl separate into three layers, clean wax at the top, the dirt in an adhering layer under it, and the water at the bottom; the dirt can be cut off the wax, and this can then be softened and rolled out on a wet slab into sheets. A small gas flame is used in building up the wax, and after the work is in the flask this can be warmed by the same apparatus used for drying models, or in a special oven I shall refer to presently. When the flask is parted, the wax can be perfectly washed away by a small stream of boiling water from the instantaneous water heater. Packing the rubber comes next, and for this we need to dry and heat the flask. This is best done in a small water-jacketed oven, such as I have here, placed on the boiling part of the laboratory burner, or with a separate burner of its own. With regard to this oven, I may say that the first was made by Mr. Planck and myself some thirty years ago. Neither of us knew much about tinmen's work, and the result was a most disgraceful affair, not fit to be seen, but it lasted for about twenty years, when it was replaced after a long service by a decently made one, which is now used by Mr. Planck, and which, I think, will be good for at least another twenty years. The use of gas for the vulcanizer needs no remarks, it is well known to all, and the use of a regulator simplifies matters very much. Speaking of regulators reminds me of old times. Mr. Planck and myself evolved out of our inner consciousness the first regulator for vulcanizers ever used, which worked by the expansion of mercury, and we used an old American alarm clock to turn the gas out at the proper time. I think I am safe in saying that a second edition of this regulator is still in use in Mr. Planck's laboratory, and is yet doing its work well. All of us have time to spare for experiments when we commence work, and the old times when Mr. Planck and myself were wasting (or using) our time experimenting are times to look back on with pleasure. I hope Mr. Planck will forgive me bringing him forward and exposing his weakness for everlasting experiments, but I may safely say that the time was not wasted, and that some good result has come out of our joint labors, which were not always expended on purely dental matters.

Coming back to more recent times, there has been a wave of demand for continuous gum work, and several special furnaces have been made and sold for this purpose. My own experience in this work is very limited, but the general opinion of those who do good work appears to tend in the direction of large muffles and slow firing. I remember seeing years ago, in the laboratory of Mr. J. Smith Turner, a very fine and perfect sample of this work which had been fired in one of my own No. 4 Muffle Furnaces with draught burner. I myself failed to fuse the work properly in the same furnace with Warrington gas, and it is a well-known fact that furnaces vary very greatly in their performance with different samples of gas as supplied in different towns. There is no doubt the

rule is that a supply of air or oxygen under pressure is necessary for satisfactory results in continuous gum work, and I have here the first furnace made for continuous gum, using the Brin Company's compressed oxygen. In this furnace any temperature, without limit, can be obtained with the greatest ease and certainty, it requires no attention whatever, and will run on for hours or days with absolute steadiness of heat. The cost of the oxygen, at full power, will be between 1s. and 1s. 6d. per hour; this is not important in the face of the fact that the apparatus requires no attention and is absolutely reliable up to any power which can possibly be required.

Leaving the laboratory, there is one matter of the utmost importance for comfort and convenience—the use of a gas fire in the waiting and operating rooms. A coal fire is a dirty nuisance, always wanting attention at the most inconvenient times, and very irregular and unreliable. At least one half the mess and trouble in these rooms is caused by the use of coal fires, and those who had once adopted the use of gas for this purpose would never return to the old system. For both operating and waiting rooms the best possible arrangement is an open incandescent gas fire, with a warm air arrangement; these need no special fixing, and can be placed in front of any ordinary coal fire grate with perfectly satisfactory results, both as to work and appearance. An expenditure of about 50s. per annum will make a small operating or waiting room comfortable, without any trouble or dirt. In conclusion, I must express my pleasure that, although I have deserted the profession for the last fifteen years, I feel that I am not quite forgotten, and that I am as much at home amongst you as if my desertion had not taken place.

SOFT RUBBER-LINED LOWER PLATES.

BY DR. G. H. FULLER, NORTH TROY, VT.

Very satisfactory results are obtained in lower plates for artificial teeth by lining them with soft or palate rubber, and letting it overlap the edges of the plate slightly. Great care must be taken in “waxing up,” making the base or model plate exactly as the finished plate should be. The surplus soft rubber can be trimmed off with scissors where necessary. This method makes a lower denture comparatively free from irritation, and in most cases it will adhere quite as firmly as an upper plate.

An excellent and quick way to mend broken plaster casts and impressions is to paint the broken surfaces over two or three times with very thick shellac varnish, and at each application to burn out the alcohol over a flame. When the shellac is sufficiently soft, press the parts together, and hold in position till cool. It will be as strong as it was before broken.

DON'T.*

BY W. A. BARROWS, D. D. S., BUFFALO, N. Y.

Looking backward over the years of one's professional life, the light of experience brings to view failures as well as triumphs. If we have honestly looked for the cause, we have pretty generally found it. Sometimes it may have been within ourselves, sometimes due to outside influences. But a conclusion has been reached anyway, and to him who follows we would naturally exclaim, "Don't."

As a rule, don't cap exposed pulps, for in nine cases out of ten, the blank things will come home to roost—on the dentist. Perhaps a success is scored now and then, but we are fast coming to the conclusion that pulp capping in general is a failure, and that the exceptions only prove the rule. If a healthy pulp be uncovered, accidentally, in the preparation of the cavity, we believe it can be capped literally, and with every prospect of permanent success. But taking them as they come, already exposed, we believe capping in a large majority of cases will prove a wretched failure.

Don't use wax or modelling compound for taking impressions. Plaster is the only material that can be relied upon for accuracy. The greater the difficulty of securing an impression the greater the need of using plaster. The plate is made to fit the mouth upon a cast that is supposed to represent the mouth faithfully. But it does not do so if your impression is taken with a material that "draws" or changes shape in its withdrawal.

Don't call it the six-year molar, or the twelve-year molar. With just as much propriety you might speak of the wisdom tooth as the eighteen-year molar. It is an ambiguous expression anyway, if not inelegant, because it does not clearly convey the meaning intended. In referring to these teeth it is proper to say the sixth year or twelfth year molar, but better still to designate them numerically as the first, second, or third molar.

When the last of several fillings has been put in, don't consider the work completed without having cleaned and polished the teeth. Some operators will fill a number of teeth in the most skillful manner and then dismiss the patient with the assurance that the teeth are in perfect order. Yet calcareous deposits, "green stains," inflamed gums, and perhaps evidences of pyorrhœa are painfully present. Your professional services are not finished, gentlemen, until you have removed all deposits, polished the teeth, treated the gums, if necessary, and put the mouth in a wholesome condition so far as your best efforts can accomplish.

* Read before the Buffalo Dental Association, February 24, 1890.

In the construction of artificial substitutes, don't use the vacuum cavity. We believe there is no necessity for its use either in full or partial dentures, whatever the conformation of the parts may be. If your cast is a perfect copy of the mouth, then there will be perfect co-adaptation of plate and mouth, inducing thereby sufficient suction for the retention of the plate. On the other hand the vacuum cavity, to fully answer its purpose, must be of such depth that it will injure the mucous membrane and produce in many cases such a hypertrophied condition as to utterly condemn its use altogether.

Don't destroy a pulp by the "knocking out" method. Dental operations are often painful, perhaps unavoidably so, but he who removes a pulp in this manner is justly chargeable with murder in the first degree. In the writer's opinion, the old way (arsenical devitalization) is yet the best way, and your patient will not begrudge the extra time required if thereby the purpose is accomplished painlessly. It is the duty of every practitioner to disarm dentistry of its terrors as much as possible, for many people neglect their teeth through very fear and dread of going through the dental mill.

Don't, in vulcanizing, see how quick you can run up to 320° . And don't flatter yourself either that you are vulcanizing at just 320° . From all the information that expert testimony furnishes it is safe to conclude that vulcanizer thermometers are pretty generally liars, and that the "baking" process is more often conducted at a temperature over 320° than under. Consequently your case is overdone and likely to come back for repairs. To vulcanize at a lower temperature and for a longer time than is customary, will secure better results.

In the treatment of devitalized teeth, don't try to operate through a pipe-stem when you can just as well have a trunk-sewer. Open up freely into the pulp-cavity so that you may have easy access to the root canals, and don't be afraid to use a drill in these canals. There is no surer way of removing the septic contents of a nerve canal than by the free use of a Morey or Gates-Glidden drill, whenever practicable. To be sure, you may not be able to drill clear to the end of each and every root, but as far as you do go you may feel certain that the septic matter has been removed. Then turn your peroxide hose into the pulp-chamber and "let her go, Gallagher." If you do not fill immediately, then for a canal dressing apply a twist of cotton dipped in Black's 1, 2, 3 mixture, or Camphorated Phenol, or a solution of Hydronaphthol, but don't fool with carbolic acid, pure, or any other acid, for these are escharotic, and your patient is likely to get burnt if you don't, unless great care is exercised.

In preparing copper amalgam for filling, heat in an iron spoon; but the instant that a globule or two of mercury appears, "douse the glim;"

dump into a mortar and triturate thoroughly and rapidly. Don't apply the heat so long that the mercury is driven to the surface in large globules, for the mass will become so soft it won't set in six months. For this reason, if you desire your filling to harden quickly, apply the heat sparingly, rub hard and briskly, and fill in short order. Copper amalgam has many virtues; but it has, also, one vice, and that is a very black one. To be sure, the discoloration is only superficial, but it is unsightly, nevertheless, and if the filling is going to be on "dress parade," *don't* use it.

CARE OF THE DECIDUOUS TEETH.*

BY F. S. MAXWELL, D. D. S., STEUBENVILLE, O.

A subject of as grave importance as this, one should take pride in presenting to a dental society for its discussion.

We all know how much good can be obtained by a due consideration of the subject, and for this purpose I write, hoping it may provoke a general awakening of interest in the right direction.

It must be surprising to all that so little has been written concerning the care of the temporary teeth, inasmuch that we all agree, or should agree, as to their importance. We know that it has only been of late years that they have received any consideration relative to their preservation, but why they have escaped the dentist's care so long, remains a mystery.

Perhaps the deciduous teeth of the children of to-day are not as free from decay and disease as they formerly were, and I firmly believe it, and for that reason have never received that proper care heretofore that they are now receiving; however, there is a large field for the care of them alone, at the present time, in which field we should all embark to a considerable extent.

To begin with: a prospective mother should be taught her duty in regard to the future welfare of her offspring. She should be taught of what her system is composed, what effect it has upon her unborn child, what that child derives from her, and what she should make provision for by her diet. Lime, phosphorus, potash, silex, etc., of which the teeth are composed, should be taken in suitable quantities, both for the preservation of her own and her child's teeth; and when I say they should be taken in suitable quantities, I mean, by the taking of food containing those important substances, such as meat, milk, eggs, and vegetables, necessary to produce strong flesh and teeth.

* Read at the Ohio Valley Dental Society meeting, Wheeling, W. Va., January 6, 1890.

What kind of teeth can you expect in a child in which it and its mother exist on starches and sugars alone? A *little* sugar will do no harm, and it must be pure, but a little does not go far toward forming strong enamel, and they would be better without it altogether. We have all noticed in most mothers' mouths, after child-birth, that pearlish white line, or groove, at the gum margin, that could have been prevented to a considerable extent by the free use of lime-water during gestation.

They should be taught that the germs of the child's teeth begin to form as early as the fifth or sixth week of fœtal life, that the teeth become almost solidified before its birth, and that during lactation the diet should be as equally important a factor in the production of strong and beautiful teeth. What delights a mother more than the appearance of her baby's first tooth, and even the succeeding ones, so that if she has followed our advice, her profit is sufficient pay for the trouble taken. Good food means good blood, and all nutritious food taken up the blood, being assimilated, shows the desired result in the human economy. Too much stress, therefore, cannot be placed upon this part of the care of the deciduous teeth.

We hear and read of plenty of methods of preventing and arresting decay, filling teeth, etc., but for the most part it is for teeth that have been erupted, and but little new can be said in that direction; a little, however, is a step forward.

The first and utmost thing is to impress the importance of cleanliness. A child, ever so small, can be taught the usefulness of a small, soft tooth-brush. The temporary teeth, to them, are as important as the permanent to an adult. Much pain can be saved with but little effort, by the proper use of the brush, and an occasional rinsing of the mouth with lime-water. When they have grown a little older give them a small quill tooth-pick to use, and you will soon see the habit becoming a permanent one.

The deciduous teeth should be filled as soon as decay makes its appearance. But what should they be filled with? Much depends upon circumstances. A child enters your office with the terrible dread of being hurt—some friend has told her "it would almost kill her"—generally for the first time accompanied by its mother; I would frequently prefer the mother to remain at home. It enters the chair with a feeling of great fear and hesitancy, and "poor little innocents" look upon the operation, whatever it may be, as a case of life or death. Assure them that you are not near as dreadful a man as you have been pictured, by an explanation of the different instruments brought before them; give them a ride in your pedal-lever chair, a time or two, by way of amusement; it takes time, but time is money. Never use the engine for the first time, they have heard of that. Select a sharp, spoon-shaped excavator, as the decay is generally of a spongy or leathery texture, and this is the most

suitable instrument for removing it, and rose-head bur for smoothing the edges. If the cavity be simple, it will soon be ready for the insertion of an amalgam filling, and the child will feel grateful, and will have satisfied its curiosity.

Do not fill more than one cavity at a sitting—they prefer to come oftener and for a short period. But, suppose this child has been crying for several nights with toothache, an exposed or irritated pulp, and seeks your office for relief! What will you do? Remove the loose decay. Place a small pledget of cotton saturated with oil of cloves, and secure with cotton saturated with gum sandarach. If you have been successful in treatment, in a day or two cap with oil of cloves and oxide of zinc, and over that place a thinly mixed phosphate filling because of its being the easiest to insert without producing pressure. On the other side of the mouth you find its companion, which the child says formerly ached, but does not now give any trouble.

You most likely discover an abscess at the end of a root—dead, or devitalized, deciduous teeth are prone to abscess. What will you do with it? Will you fill? Certainly. Cleanse the cavity of carious dentine and foreign matter, for the chances are it is alive with “germs,” exposing the root canals. Wash out with peroxide of hydrogen until no effervescence is noticed or odor perceptible. Place oil of eucalyptus and iodoform in the canal, or canals, and allow it to remain for three or four days without changing. More harm is done by too much treatment than too little, and if the tooth has been comfortable during that time, fill at once with chlora-percha, or gutta-percha, if the canal is large enough, preceded by the chlora-percha, using care not to force it through the naturally large foramen, and cover with whatever desired. In a deciduous tooth, more care should be taken not to force a foreign substance through the foramen, than is necessary in the permanent, for obvious reasons. The eucalyptus oil saturates the root canals and dental tubuli by virtue of its diffusible properties, and enough remains in the canals to force with chlora-percha to the ends of the roots, drying up the fistulous opening and preventing, materially, subsequent trouble.

You notice that I use the essential oils in the treatment of the deciduous teeth. I believe they are the best medicines brought to our notice for that purpose. Suppose capping will not *save*, in your judgment, how will you destroy the pulp? Strangle it with two or three applications of pure carbolic acid. I have used arsenic to destroy, but prefer not to in a majority of cases. Remove the pulp with small barbed broaches and fill as before.

There is no trouble, gentlemen, in succeeding with children if we but approach them properly. Treat them tenderly, be patient, delicate in touch, sympathetic, apparently—gain their esteem by kind words, and

your path is made much clearer. There is nothing more satisfactory to the mother, child, or yourself, than the successful care and treatment of the child's teeth. Be thorough in your work, earn their confidence by your sound advice and good judgment, and you will be amply repaid by the good results shown and by their subsequent patronage.—*Ohio Journal of Dental Science.*

THE USE AND ABUSE OF THE DENTAL ENGINE.

BY WILLIAM RUSHTON, L. D. S.

At the present time there are very few dentists who do not use, and find the benefit of, the dental engine, though some practitioners look upon it as totally unnecessary, besides being a barbarous instrument and a terror to their patients. These gentlemen—the small minority—maintain that they can do their work by the aid of chisels, hand-drills, excavators, and files, in a manner perfectly satisfactory to their patients and themselves, and that to introduce the dental engine extensively, or even at all, into their practice, would be detrimental to their interests, and would frighten their patients away.

The minority certainly have a right to be heard, and we must confess that, to a certain extent, they have good cause for their abstinence from the use of the dental engine. We have all encountered the patient who exclaims in a tone, more in sorrow than in anger, "Oh! are you going to use that dreadful thing?" and we who have experienced the sensation of the swiftly rotating burr on our own sensitive dentine (and every dentist ought) know there is good cause for the terror often evinced by our nervous patients when they see us fixing a burr and placing our foot on the treadle.

I said the other day to a brother dentist, whom I much respect, "How is it you cannot get your patients to stand your using the engine?" He said, "My dear sir, I can; my patients will let me do what I like, if I tell them it is necessary; but they will like it none the better, and will seize the first opportunity of leaving me." I afterwards watched this gentleman prepare and fill a cavity with hand instruments, using them with great skill, and though I thought that the violence with which he had sometimes to use his chisels and excavators compared unfavorably with the action of the dental engine on similar hard tissues, and though his edges were not as perfect as if he had gone round them with a finishing burr, yet the work was good, and had every appearance of lasting, and showed what could be done in a somewhat awkward cavity in a short time by hand instruments only.

But although the work was good, it was not as good as if the cavity had been prepared with the aid of the dental engine. Although the operator was rapid, he took a longer time than if he had used the engine, and, as I have remarked before, his chisels and excavators were used with such violence, that it seemed to my mind that a sharp burr on the engine would have been far preferable. Therefore, I say, granting that I am correct in these statements, it seems to me a mistake in these gentlemen, from a notion of not frightening their patients, to discard an instrument capable of doing so much.

But, on the other hand, I am quite certain the engine has got itself disliked by the public, owing, to a great extent, to its abuse. We know perfectly well that we cannot do honest dentistry without giving occasional pain, however careful we may be, and "painless dentistry" is well known to be synonymous with "arrant quackery." Now, the dental engine not only gives physical pain, but what is often far worse, gives mental pain and great nervous strain. It is not always so much the actual pain the instrument may give, but it is the dread in the patient's mind of what it may do if it slips. The appearance, too, of the instrument is not in its favor. It is not like the young man "whose appearance was the best testimonial to character." Patients hate the sight of it; even the jar of the burr on the teeth (especially when a coarse-cut burr or a corundum stone is used) is unbearable to many persons, and when this is accompanied by the thought, "what if that thing should slip and fly wildly round my mouth," (a thought ever present to the minds of some patients,) we can easily understand how they dislike its use.

The chief practical points seem to me to be, firstly, only use the engine when necessary. I once had some conversation with a gentleman, who told me his trouble was to get an assistant "who was not wedded to the dental engine," as he found this matrimonial alliance not followed by the propagation of more patients, but on the contrary, a diminution of his practice. Very often a well directed sweep of the chisel or excavator will do all that is required, and as Opie mixed his colors "with brains" so we ought to mix a little common sense in the use of our tools, and not proceed by stereotyped rules, as no two patients are alike. I have seen dentists use the dental engine to clear out disintegrated and softened dentine from a cavity; there would be quite as much sense in cutting a cream cheese with a steam saw. On the other hand, in shaping up the cavity the engine is invaluable; in making retaining points, undercuts, and trimming edges, we must all acknowledge its use, as also for finishing off fillings, polishing with discs, corundums, etc. Of course all this can be done by hand, but who would take the time and trouble to walk to Brighton if he can go Pullman express?

Secondly, our burrs must be sharp, and all our gear in good order. A blunt burr gives far more trouble to us and pain to our patient than a sharp one; yet how many dentists there are who neglect this important point (the same remarks apply to excavators), and the dental engine gets the credit of the extra pain and trouble. Some dentists sharpen their own burrs, but the usual way is to send them to be sharpened to the depots, and by having two sets, one can always be in use while the other is being sharpened or kept in reserve. The engine, too, should be well oiled, taking care to use no oil which smells,—better have an oil which clogs than one which offends your patient's olfactory sense. The cord of the engine should not be too tight or too loose, as, it slipping, or the engine stopping, or the burr catching in the rubber dam, all may give your patient a shock, and help to earn the engine a bad name.

Thirdly, use the utmost discretion in using the engine, about guarding against the hand slipping, etc.

There are some patients—children, invalids, and highly neurotic subjects—in whose case it is sometimes advisable not to think of using the engine. You may not in such cases put in as good work as you would like, but better put in work of a temporary character than frighten these subjects away from the ministration of the dentist, and perhaps let irremediable mischief be done.

Children who have not been previously frightened, as a rule will not mind the engine *if you do not hurt them*, and children up to, say, twelve years old, should not be hurt if possible, as they conceive a dislike to visiting the dentist, and therefore conceal tooth mischief from their parents. It is a good plan to use the dental engine with a child, even if you do next to nothing with it, as it accustoms the child to its use, and on a future occasion it will not rebel against its being used.

Choose a suitable burr, and do not plunge *in medias res* at once, but touch the tooth with the burr, constantly taking it off and putting it on again, till you see how your patient bears it; and even in good patients I think it is advisable never to keep the burr on the tooth for more than two or three seconds at a time, as it gives them relief from that nerve tension they all suffer from during its application.

Always steady your finger or thumb on a neighboring tooth, (the same remark applies to the chisels and excavators,) so that if your burr happens to slip it cannot slip far; and if you find your patient starts, make it slip again in the same way two or three times *on purpose* and they begin to see it was a mistake for them to think your hand was not steady, and that you are doing it for some special reason.

The burr need never be pressed very hard upon the tooth; if the burr is sharp it will not require that, if it is blunt, reject it. I have heard of dentists taking the temper out of a burr by pressure and swift rotation. I should think it would also take the temper out of the patient.

In summing up these few thoughts, I think we may say that those who use the engine too much, and those who use it too little or not at all, are equally unwise; that it has found a lasting and honored place in our dental armory, and that it remains for us, by a wise and prudent use of it, to get its full services without unduly martyring our patients, teaching them that it is a beneficent and time-saving friend, not only for the operator, but for the patient.—*The Dental Record*.

MODELLING COMPOSITION FOR TAKING IMPRESSIONS.

BY DR. GEO. S. STAPLES, SHERMAN, TEXAS.

Having noticed several articles recently in regard to taking impressions with modelling composition, I wish to give a few ideas: my own experience of about eight years with it.

We all know plaster to be the favorite material with most dentists for taking impressions; and I believe the reason why they prefer plaster is that they have never thoroughly tried modelling compound, and especially for partial plates. We hear men say they cannot get perfect impressions for partial sets with anything but plaster, because plastic materials are drawn out of form by the teeth when removing the impression from the mouth. Suppose the impression is taken in plaster, and by gathering up the pieces and fitting them in place you get a perfect impression of the parts; then, suppose you make a plate to perfectly fit that model; can you get that plate in the mouth without trimming it? No; neither will it fit better when you do get it in, than if you had taken the impression in wax at first, and slightly trimmed the model where the wax had dragged, for the points that do the dragging will prevent any plate from going into the mouth, that is made from a perfect impression. Hence, I have always considered the great stress laid on the securing of a perfect impression for partial sets of teeth, by the "all-plaster cranks," as one of the biggest pieces of "tomfoolery" ever advanced by the profession; and yet I do not remember of ever having seen an article published, denying the superiority of plaster over everything else.

I will make some broad assertions, all of which I am ready to defend whenever contradicted.

My first assertion is that modelling compound is better than plaster for all kinds of impressions, because: first, it is less disagreeable to the patient; in the next place, for full sets, I can get as accurate an impression as can be made with plaster, a much smoother model than can possibly be made from plaster, in much less time, with less trouble; and for

partial sets, I can construct a plate from the model taken from the compound impression, that will fit as accurately when placed in the mouth, as can be made from an impression taken with any other material.

Why subject yourself and your patient to the inconvenience and trouble of the plaster, when the compound will answer every purpose better? I will give my method of using it, and ask all who have not done so, to try it as I have done, and report results:

There are several grades of the compound; keep about two, and by mixing use it just as stiff as can be introduced in the mouth, without burning. Use impression cup larger than for plaster, and a superabundance of the compound; press it up slowly, and keep the lips and soft parts out of the way, until it is thoroughly adjusted all around; previous to inserting, put a Horton's rubber bib on; use ice-water with the syringe until perfectly hard, before removing. I believe we can secure a better impression in this way than can be taken with any other material now in use.—*Archives of Dentistry*.

TRANSMISSION OF DISEASE BY DENTAL INSTRUMENTS.

BY J. P. PARKER, M. D., PH. G., KANSAS CITY, MO.

As all dentists know, any material which has been in contact with the secretions of syphilitic lesions, or the blood of a syphilitic, during the active stage of the disease, may prove the medium of communication of the malady to a healthy person, provided only that the substance so contaminated is brought into contact with a lesion, however slight, of the skin or mucous membrane. Hence the importance of keeping all dental instruments in a clean and aseptic condition, as all well-trained surgeons do. No punishment would be too severe for the dentist who neglects to clean every instrument immediately after he uses it, or before he operates on another patient with it. The following cases will illustrate the importance of the subject:

August 17, 1888, Miss F. consulted me about an eye trouble, and she stated that her throat and gums had been very sore for some days. On examination I found that she had a bad case of iritis (both eyes), glandular swelling and a coppery papular eruption distributed over the face and body. The age and modest manners of the young lady made it difficult for me to approach the subject without embarrassment, although I was positive that I had made a correct diagnosis. I desired to know on what part of the body the initial lesion appeared, and if it had been properly treated. Being a very intelligent young woman she observed that I

was puzzled, and began to talk more freely. She stated that the dentist extracted a tooth for her about three months before, which he cut around with a dull knife, and the wound had never healed, although the dentist had treated it a number of times and she had applied ever so much tincture of myrrh, etc. I examined the gums and found a chancre where the cut had been made. The syphilitic virus had been carried into the wound either on the knife or forceps.

On September 11, 1888, a young gentleman aged about 22 years, consulted me about a sore on his lower lip, and stated that the family physician had prescribed a lip salve which had always cured the sores he had on his lips before, but did not appear to do this one any good; and with a bright smile on his face he said he had been referred to me by Miss F. But few questions were necessary to elicit all the information I desired. It was evident that the chancre on his lip had been acquired by direct contact through the act of kissing.

The couple have been married about ten months. The young wife is now pregnant and it is only a matter of a few weeks when she will give birth to a syphilitic child which will be a monument of the dentist's inability and carelessness. I report the case for what it may be worth. Too much care cannot be exercised by dentists as well as physicians in keeping their instruments clean, which is easily accomplished. I never neglect to clean and sterilize every instrument I use in the throat, nose, eye or ear, immediately after using it. The patient being a minister of the gospel or a deacon in the church does not change my habit. Syphilization and civilization are traveling together. Syphilis is encountered everywhere—in the palace of the mighty—in the hovel of the slave. It infects the infant before birth and attends the gray hairs of age tottering to the grave.—*The Western Dental Journal*.

GAIN AND RETAIN THE CONFIDENCE OF YOUR PATIENTS.

BY DR. A. N. FERRIS, WATERLOO, IOWA.

By keeping a clean, attractive, cheerful office, in *all* its departments, from the entrance to reception room, to the corner behind the laboratory door.

By keeping chair and operating table dusted, and instruments clean and disinfected. It will also help if we have a neat, pleasant assistant to do this in sight of the patient.

By operator and assistant being cleanly in person; and to be so, must necessarily be free from the odors of tobacco, and worse, the fumes resulting from the handling of horses.

Try and manage, apparently innocently, to have the patient see you wash your hands after leaving one patient before operating for another. Also, at all times show a pleasing, polite, gentle manner, even though you feel very angry at some perplexing thing or person; but, ever be firm in your idea of right, without being overbearing.

By educating our patients in dental science, in talking sufficiently to make them have confidence in the results of the art, and thus increase our practice, as well as greatly benefit our patients.

By saving our patients pain and unpleasantness in all ways possible; for instance, instead of excavating a sensitive cavity exposed to the fluids of the mouth and with dull instruments, treat the teeth to an application of rubber-dam protected from the lips by a soft napkin, and excavating with sharp instruments,—the most efficient obtunder I have found.

In all care to save pain, do not slight the operation; for, while gaining present confidence, you are most certain to lose it in time to come, on account of failure to do lasting operations; but explain the necessity of pain and the good results from bearing it.

By making uniform, honest fees; because, if your fees to near neighbors differ for the same kind of work, they will think you dishonest. Have the same fees for every one, and if you wish to help poor people, give them something and make them understand it is a gift and not a cut from regular prices.

Pages might be written on this subject, but time and space will not permit at present. While I do not expect this to be a help to the many successful men in the profession, yet it may add a few hints to the numerous unsuccessful, careless operators, and assist them to look up and on to a more ennobling and beneficial end.—*American Journal of Dental Surgery*.



IS IT PROPER AND PROFESSIONAL FOR DENTISTS TO OBTAIN AND HOLD PATENTS FOR THEIR INVENTIONS? *

BY JAMES E. BYRNE, NEW YORK COLLEGE OF DENTISTRY.

It was written by the Poet Laureate, "The old order changeth, yielding place to new, lest a custom should corrupt the world."

In our present age and country this is doubly true. No custom or practice is, or can be, so old or set about with guaranties, customs, habits, or usages, but that it must submit to be examined in the growing

* Read before the Students' Society, N. Y. C. D., January 6, 1890.

light of our times, and discussed by our better reason, aided by the experience of the past.

As intelligence increases, so grows the spirit of inquiry, and now it would be as vain to try and still the wind, or fetter the tide, as to endeavor to hinder the march of mind. Bolder and stronger minds will investigate and will discuss and profit by the results of such investigation, caring for nothing but to win success.

In view of these facts, I propose to discuss for the time allotted to me the question, "Is it proper and professional for dentists to obtain and hold patents for their inventions?"

While it is not for me to decide a question of so much importance, still I propose to present some of the arguments which have been adduced on either side of this question, and then leave the matter for the further consideration and discussion of the profession.

It has been suggested that as dentistry is a part of the great science of medicine, it should be governed by and loyally obey all the rules of medical ethics. That as these rules are gray with age, and enriched by the wisdom and experience of an hundred years, their claim to obedience should be unquestioned and reverently acceded.

One of these rules forbids that a member of the profession shall monopolize his own inventions, and as dentistry is a part of medicine, it would be dishonorable and unprofessional for a dentist to disregard this rule and obtain a patent monopoly of his own invention.

This at first view seems fair enough, but the men who are interested in patents will naturally ask when and by whom these rules of ethics were established. If they should determine that they belong to a past age, when the thunders of the Vatican could dethrone kings and frighten nations, they might be inclined to rebel, and to say that we are living in the present, not in the past.

The opponents of these strict rules claim also that, if carefully followed, they would have effectually prevented the whole profession from advancement, for they claim that the tendency is to dwarf the mind of the young practitioner, to prevent him from competition with his older brethren, and to cramp him into a narrow compass. Now all this does not seem true to the upholders of the code of ethics, but if their opponents really believe it to be true, can we blame them if they act accordingly?

It is said that the dental profession is "a dispenser of blessings and comforts to all who come under its enlightened and beneficent healing;" a mission of mercy to mankind; and that each member of the profession should be filled with unselfish ardor, in view of his high mission to suffering humanity, that the results of his experiments, however costly, and his inventions, however laboriously obtained, should for the sake of this same suffering humanity be announced to the profession at large, so that

the whole fraternity may reap the benefit. That any person who has any other view of this matter looks upon dentistry in no higher light than an earner of his bread, no higher than a donkey to toil before his cart of self-profit, whose hide and bones he would be glad to sell when they can no longer serve him.

But the pro-patent men say: "Softly, softly, my friend! What took you into the dental profession? Did you go into it in the crusading spirit of Don Quixote, or did you go into it to earn an honest, honorable living? No man is his own—all he has and all he is are only held in trust."

Every honest man should in due time have his own home, in which to cherish and nourish his loved ones. It is for them that he holds all in trust: his talents, skill, enterprise, business ability, inventions—are all as much his property as the money in his pocket, and, as we have already seen, are only held in trust. Shall he love his profession more than his family? Shall he make a Moloch of his profession and grimly sacrifice his family upon the altar?

Professional ethics and professional ardor must yield to necessity, reason and common sense, and so it cannot be justly expected that the more ingenious part of the profession will furnish the duller portion with a stock in trade, free, gratis and for nothing. Has any of this class learned the business for nothing? This is the day when money is necessary to furnish the necessities and comforts of life, and dentists and their families need them as much as anybody; so the same rules of prudence, caution and frugality that apply to the doings of other men apply with equal force to them. What sane man in all the wide world should throw away valuable property, when that property can be easily and effectively secured by law?

Sentiment is good enough in its place, but money buys bread and clothes, and provides for many of the other necessities of life.

On the one hand it is pointed out that the obtaining of patents by the profession creates monopolies, by means of which prices are kept up, and the burden of this higher price eventually falls on the patient. On the other hand we are told, by way of objection, that patents cheapen processes, decrease the amount of skill required, and so open the way for quackery in the profession.

As these claims are diametrically opposed to each other, might it not be profitable for us to ascertain which of the two propositions is founded on fact?

The pro-patent men claim that all such propositions have long ago been answered by the inexorable logic of events.

When the tailor and the seamstress had nothing but needle and shears, it required the very best skill to make a good garment, and the consumer

had to pay a high price for that skill. The sewing machine was invented. Then the cry was, these people that have the patent will set up their monopoly so poor people can't buy machines, and they can't compete against the cheap work of the machine, and so the poor dressmaker and tailor will starve.

Another class cried, they will set up a lot of "cubs" to work who don't understand the business, and so the work will be horrible.

How did it turn out? The beneficent patent law left room for a second sewing machine patent, and then another, and then another still, until now the name of sewing machine patents is legion, and the competition among sewing machine men is so great that a good machine is within the reach of the poorest sewing girl in the land. And how is it as to work for the poor operators? It has increased ten-fold! Think of the business in ready-made clothing, a thing almost unknown before the invention of the sewing machine! And how about the consumer? To-day we can buy a suit of ready-made clothing for about one-third of what it would have cost thirty years ago. The material is fully as good and the workmanship much superior.

Surely this is a great gain, which we owe largely to the patent law, and this is only one department in which it has exerted its benign influence. In fact, the pro-patent men cry exultingly: What of all your material comforts is there that you do not in some measure owe to patents?

And then they sneer and ask: Will you be laggards in the march of men? Will you be left behind when all the world but you moves onward? Will you live in the dead past, or will you cast your lot in the living present?

The anti-patent members of the profession claim that it is very illiberal, that it is a great disgrace to members of a liberal profession, for one dentist to compel a brother dentist to pay tribute to his secret process or his newly invented instrument. That if carried out in its fullness, such a course might give one member of the profession the power to make all the rest subservient to him; that one dentist in an obscure street might buy a patent for a whole city on some secret process or some improved instrument, and then if other and better men wanted to use the same inventions, they must pay him royalty or submit to tedious and expensive litigation. That every dentist ought to be a teacher, and for that reason ought to have no secrets in his profession which he would not gladly communicate at the first opportunity to his brother dentists free and without charge.

To this the pro-patent men reply, that in this happy land we know of no distinctions of any kind among men, except such as are won by honest effort; that class distinctions are dead and gone. All men are born equal, all men are born alike before the law, and whatever real difference

may be found among them arise only from their own doings. In this uncompromising democracy, "distinctions do not spring from the dust," but every man is the architect of his own fortune. These men very naturally inquire, What rights have dentists more than anybody else? Can it be possible that in this free country, that we have retrograded so far into the dark ages, that one part of any calling whatever claims that it has a right to the free use of the inventions and discoveries of the other part of the same calling? That dull, lazy, ignorant people shall profit by the skill and ability of men who by industry and study have found out better things? All such ideas are un-American; they belong to the past; they have no place in our age and generation.

A careful investigation of fact shows that necessity is the mother of invention, and often "mother necessity" is "gray old poverty."

Our law benignly recognizes this fact, and acknowledges that every man's invention is his exclusive property, and says to every inventor on earth, without distinction as to race, nationality, occupation or condition: We know that your invention is your exclusive property, and that it would be unjust and unlawful to deprive you of it without your consent, and as we well know the world is full of pirates, who would gladly steal your invention upon any pretext whatever, we will, if you will make a full disclosure to our proper authorities, fully describing your invention, give you the exclusive right to make, use and sell your invention for seventeen years, and will protect you against all comers for that length of time; but as that will give you ample time to reap all the benefits that ought justly to accrue from your invention, at the expiration of that time your invention must become common property for the free use of all concerned.

Now what right, either in law, equity or morals, has any association of men to set themselves in opposition to this law, and attempt to teach contrary to the enactments of Congress?

Suppose that the machinists should have resolved themselves into a close corporation, and said that it is unbecoming of the craft for any machinist to secure his inventions, and had taught their apprentices that it was their duty to at once inform their fellow-craftsmen of all the improvements they might make as soon as they were completed; that the lazy, ignorant ones must be carried upon the shoulders of the industrious and intelligent ones; where would our factories and railroads be to-day? Like they are in barbarous lands where no patents are granted. Even the Sultan of Turkey, irreclaimable savage as he is, has found out a few facts in this case, and now actually will, once in a while, on strong provocation, grant a patent.

It will not do to say: "Oh yes, this is all good enough for sordid mechanics, but we of a liberal profession are governed by different rules."

“Are you in very deed?” cry the pro-patent members of the profession.

“When and by what authority were you empowered to make law?”

You are quite a small part of the body politic, and now what right have you to set yourselves up against the great mass of the people? When the papacy set itself up to think and act for its votaries, it stayed the wheels of human progress through all the dreary night of the dark ages. It was this great power that compelled grand old Gallileo to kneel in one of its costly fanes, and with uplifted hand swear that the microscope and the telescope were both witchcraft, that it was not true that the solar system revolved around the sun, that he sorely repented having practiced the one and believed the other.

Methinks that in spite of the pathos of this story, the childishness of the Church provokes a smile.

Do you not think that in the near future it is barely possible that some brave strong men will smile at your teachings and riddle your rules of ethics, as the bold reformers tore the obstructions in the way of free thought to tatters?

Would it not then be wise to trim your sails to the coming wind, and avoid total shipwreck?

But, says one of the older members of the profession, we must be respectable and stick to and obey all the rules and regulations of the profession. The pro-patent men reply to this by stating that it has always been and will always be, that whenever intelligence increases and light grows stronger, and the leaders of men redouble their investigations, some old fogies will stand in the way, and, croaking at new innovations, will cry, “Stick to the old rules;” and the pro-patent men even go so far as to intimate that many of the rules are better honored in breach than in the observance. To the charge that patents produce monopolies, the pro-patent men reply, there is not an artisan, manufacturer or producer of any kind in all this happy land who does not directly or indirectly pay tribute to somebody’s patent monopoly, and it is such a help to them all that they hail each new invention, in spite of its attendant monopoly, as a new harbinger of their own success.

Compare the plodding, drudging farmer of fifty years ago, with all his hard work, awkward shifts, and miserable results, with the independent, intelligent farmer of to-day. He has the good sense to pay the tribute required by patent monopolies, but what has it done for him? Emancipated him from one-half of his toil and drudgery, and his products are better and more cheaply obtained. We are compelled to go to him to buy our food, and he, because he pays tribute to a patent monopoly, can sell it cheaper; thus we are all benefited by a patent monopoly. A similar state of facts will be found in every department of labor, manufacture and production.

Then, if patent monopolies have produced these beneficial results, how can they be odious? The pro-patent men triumphantly assert that there is not one of all the material comforts which sweeten and make life more pleasant, that we do not owe in some measure to patent monopolies. They further ask, since they have shown you what a brilliant, beneficent success patents have been in every other branch of life, what reason can you allege why they will not work well in the dental profession?

All these arguments, objections and questions are very aggravating, but they are like Banquo's ghost, they "will not down." They are pressing upon us from every side and demand an answer.

What shall we say? I feel myself entirely incompetent to reply, but hope in the near future my brethren will make such answer as will redound to the strength and honor of the profession, the good of humanity, and the interests of all concerned.—*The Record, N. Y. C. D.*

HOW TO SPLICE ENGINE BANDS.*

BY GEORGE A. MAXFIELD, D. D. S., HOLYOKE, MASS.

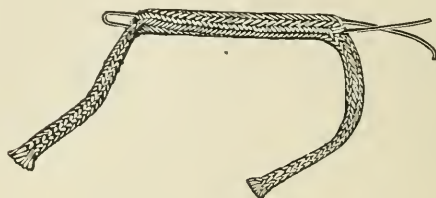
In thinking over what I could present under the head of Dental Technics, and after extended inquiries among my dental friends, and finding that none of them knew of this method of making a splice, I decided to demonstrate it at this meeting. This method is not original with me,—though I am probably the first to demonstrate it to the profession,—but was invented, I believe, a few years ago by a foreman in one of our woolen-mills at Holyoke, and is now used in most of the mills where a braided band is used. The manner in which most of the dentists splice their bands is, to say the least, a very clumsy one. It takes considerable time to make it, it is not very strong, and never runs smoothly. The splice which I shall show you is made very quickly, makes a strong, even splice, and runs smoothly; in fact, the harder you pull on the band the stronger it holds. The instrument, which I shall call a needle, used in making the splice is made of piano wire, bent in the form of a hair-pin, the free ends inserted in a wooden handle, and fastened so that they will not pull out, allowing the bow end to extend about two and one-half inches from the handle. The sides of the bow must be bent near enough together to allow it to pass easily through the centre of the band.

To make the splice: Measure the exact length the band must be when spliced, mark it, then cut off the band, say seven inches longer. This extra length is taken up in the splice. A splice six inches long is

* Demonstrated at the Union Dental Meeting at Springfield, Mass., October 23, 1889.

stronger and runs smoother than one only four inches long. Unravel about an inch of each end of the band. Take the needle and pass the bow into the band where you have marked the end to be, then pass it through the centre of the band one-half of the extra length, and then out again, as at Fig. 1. Take the other end of the band and insert into the bow of the needle just enough to hold, and pull it through and out where the needle first entered. (See Fig. 2.) Treat the other end of the band in the same way as the first (see Fig. 3), and draw the free end through.

FIG. 1.



Smooth out the splice, and cut the ends so that they will come inside of the band, and your splice is finished. If you wish to make the splice

FIG. 2.

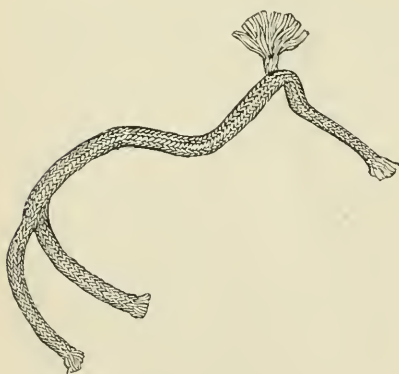
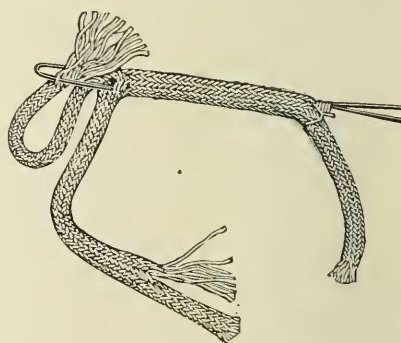


FIG. 3.



smoother, roll it between two pieces of wood. If your band has a *core*, it requires more painstaking in making the splice; yet it is easily done. First draw out the core from each end the length the splice is to be, say six inches, and so manipulate it as to have the ends come inside the band, exactly where the core has been cut. If you are not particular about this, you will have a weak spot at each end of the splice. If you are particular in splicing this kind of a band, you will hardly be able to detect the splice after it is finished.—*The International Dental Journal*.

CRYSTALLOID GOLD.

BY C. N. JOHNSON, L. D. S., D. D. S., CHICAGO, ILL.

Various forms of so-called plastic or sponge gold have from time to time been offered to the profession, but none of them has come into general use. A partial reason for this is the peculiar nature of the material which calls for peculiar methods of manipulation not easily grasped by the ordinary operator. But probably the greatest drawback to its use by those who have studied it most, is its tendency to become granular on the slightest mismanagement.

An equal rapidity in manipulation would entail a greater waste of plastic gold than of foil or pellets. In short, plastic gold has not tenacity of fiber enough to make it work conveniently as a filling material.

But it has two desirable qualities which should not be lost sight of. It is more readily adapted to the walls of cavities, owing to the ease with which its particles—not being fibrous—will slide over each other and spread under pressure. Then again, the same characteristic conduces to an even surface on the filling, which is not always so readily obtained with ordinary foil. It is doubtful if fillings made from plastic gold have the strength—would stand an equal strain if built into contours—that have those from a more fibrous material, but the reports of operators who have had long experience with it, seem to favor the conclusion that a better surface will be retained after years of wear than with any other form of gold.

To overcome the disadvantage of plastic gold, and at the same time retain its desirable qualities, Mr. R. S. Williams, of New York, hit upon the idea of enclosing between two sheets of foil, a layer of plastic gold. The foil is exceedingly thin, so it does not materially interfere with the plasticity of the material under the plugger, and yet it imparts to the mass a sufficient degree of toughness to make it work kindly.

It comes in four numbers. Nos. 1 and 2 are recommended for starting fillings; No. 3 for general and contour work, and No. 4 for use in connection with amalgam, where the latter has been placed along the cervical margin of deep cavities.

The writer has had no experience with No. 4, and very little with No. 3; but for starting fillings Nos. 1 and 2 come nearer being the ideal filling material than anything that has ever been offered the profession.

If it is not used in every office where gold fillings are inserted, it is because its good qualities are not recognized, or its proper manipulation not understood. From reports concerning its use it is feared that few operators handle this gold properly. It should never be used in flat pieces cut from the pads as we get them from the manufacturer. The

layers of foil on the outside are so thin that, used in this form, they are liable to be punctured or torn, when immediately we have the same difficulty as with ordinary plastic gold—a crumbling of the material which makes it very unsatisfactory. One or two experiences of this kind are enough to discourage the operator, and it has too often been thrown aside without realizing that the fault was in the manner of working instead of in the material.

To properly start a filling with crystalloid gold one should note the kind of cavity to be filled and prepare the gold accordingly. If a small, round, “well-shaped” cavity—often the most difficult in which to secure a firm foundation—a strip should be cut from the gold somewhat wider than the depth of the cavity. This should then be rolled quite tight until the pellet is so large that—standing on its end—it will fit snugly into the cavity. A plugger with point nearly as broad as the area of the cavity, and having shallow serrations, should then be used, and the whole mass driven into place with hand pressure. If used in this way the gold will in every instance stay firmly impacted in the bottom of the cavity and will not roll or tilt when other gold is added to it. An ordinary crown cavity in a molar or bicuspid—especially the upper—is more than half filled by this one pellet, and with the assurance that adaptation is good if the force is properly applied.

Tests made out of the mouth show that crystalloid gold under pressure will conform to surfaces which are very uneven, and the firmness with which it is anchored in the bottom of an ordinary cavity proves that it must fit the walls accurately.

If the cavity is a proximal one in a molar or bicuspid, the strip should be cut sufficiently wide to reach across the floor of the cavity from buccal to lingual wall. It should then be rolled large enough so that when laid lengthways in position it will cover well the cervical margin, and admit of being wedged firmly into place with broad-pointed pluggers. Pressure should first be directed on one end of the pellet toward the cervico-buccal, or cervico-lingual corner, and then—though this is not always necessary—that end may be held firm with an instrument in the left hand, while the other is driven into place in the opposite corner.

There is not the same tendency for this gold to curl up after being condensed as with other forms, and if enough material is used to cover well the bottom of the cavity, and a broad plugger which will carry the mass before it instead of puncturing it, the feat of starting a filling in almost any cavity is rendered extremely simple.

This certainly cannot be said of ordinary gold, for although non-cohesive gold has been advocated for this purpose as being all that was desired, the fact is that we have found a large discrepancy between the theory and the practice. Non-cohesive gold will not in all cases stay

where it is placed, and while much preferable to cohesive in this respect, it cannot be compared with crystalloid.

The main point then in starting a filling with crystalloid is to roll it carefully into pellets of proper size, which lessens the tendency to crumble. When rolled in this way it makes a tough, putty-like mass, which when manipulated with broad pluggers will prove a great comfort to those who have had difficulty in making the first portion of a filling firm.

The convenience of having pellets on hand has led the writer to roll up a variety of sizes during spare moments, thus saving time at the chair.

Of course the gold should never be annealed for starting the filling, but if No. 3 be used for completing the operation it requires annealing to a red heat.

As has been intimated, the writer's experience with the latter has been too limited to express an opinion. His preference yet is for the ordinary foil or pellets in the bulk of the filling, but for finishing, the No. 3 crystalloid, laid flat instead of rolled into pellets, and firmly malleted, makes a much more even surface than ordinary foil; and if time proves it to wear well it certainly will be preferable for this purpose.

To those who have not used crystalloid, the advice is to give it a careful trial, and the hope is expressed that it will prove as great a satisfaction to others as it has to the writer.—*The Dental Review*.



TENTH INTERNATIONAL MEDICAL CONGRESS, BERLIN, 1890.

REGULATIONS AND PROGRAMME.

I. The Tenth International Medical Congress will be opened in Berlin on Monday, August 4, 1890, and will be closed on Saturday, August 9.

II. The Congress shall consist of legally qualified medical men who have inscribed themselves as members, and have paid for their card of membership. Other men of science who interest themselves in the work of the Congress, may be admitted as extraordinary members.

Those who take part in the Congress shall pay a subscription of 20 marks (one pound stg. or \$5), on being enrolled as members. For this sum they shall receive a copy of the transactions as soon as they appear. The enrollment shall take place at the beginning of the Congress. Gentlemen may, however, be enrolled as members by sending the amount of

the subscription to the Treasurer* with their name, professional status and residence appended.

III. The object of the Congress is an exclusively scientific one.

IV. The work of the Congress will be discharged by eighteen different sections. The members shall declare upon enrollment to which section or sections they intend more particularly to attach themselves.

V. The committee of organization shall, at the opening sitting of the Congress, suggest the election of a definite committee (or bureau) which shall consist of a president, three vice-presidents, and of a number—as yet undetermined—of honorary presidents and secretaries.

At the first meeting of each section a president and certain member of honorary presidents shall be elected; these latter shall conduct the business of the sections in turn with the presidents.

On account of the different languages employed, a suitable number of secretaries shall be chosen from among the foreign members. The duties of the foreign secretaries shall be confined to the sittings of the Congress.

After the termination of the Congress the editing of the transactions shall be carried out by a committee, specially appointed for this purpose.

VI. The Congress will assemble daily, either for a general meeting or for the labors of the different sections.

The general meetings will be held between 11 and 2 o'clock. Three such meetings will take place.

The time for the sittings of the various sections will be fixed by the special committee of each section, it being understood, however, that no such sittings are to take place during the hours allotted to the general meetings.

Joint sittings of two or more sections may be held, provided that the bureau of the Congress can offer suitable rooms for such sittings.

VII. The general meetings shall be devoted to:

a. Transactions connected with the work and general management of the Congress.

b. Speeches and communications of general interest.

VIII. Addresses in the general sittings, as well as in any extraordinary meetings which may be determined upon, can only be given by those who have been specially requested by the committee of organization.

Proposals relative to the future management of the Congress must be announced to the committee of organization before July 1, 1890. The committee shall decide whether these proposals are suitable to be introduced for discussion.

* Treasurer's address: Dr. M. Bartels, Berlin, S. W., Leipzigerstrasse 75. (Please to enclose a visiting card.)

IX. In the sittings of the sections, questions and problems will be discussed, which have been agreed upon by the special committees of organization. The communications of those appointed by the committee to report on a subject, shall form the basis of discussion. As far as time allows, other communications or proposals, proceeding from members and sanctioned by the committee of organization, may also be introduced for discussion. The bureau of each section decides as to the acceptance of such offered communications, and as to the order in which they shall come before the meeting, always provided that this point has not been already determined in the sitting itself by a decree of the section.

Scientific questions shall not be put to the vote.

X. Introductory addresses in the sections must as a rule not exceed *twenty minutes in length*. In the discussions no more than *ten minutes* are allowed to each speaker.

XI. All addresses and papers in the general and sectional meetings must be handed over to the secretaries, in writing, before the end of the sitting. The editorial committee shall decide whether—and to what extent—these written contributions shall be included in the printed transactions of the Congress. The members who have taken part in the discussions will be requested to hand over to the secretaries, before the end of the day, in writing, the substance of their remarks.

XII. The official languages of all the sittings shall be German, English, and French. The regulations, the programme, and the Agenda for the day will be printed in all three languages.

It will, however, be allowable to make use of other languages than the above for brief remarks, always provided that one of the members present is ready to translate the gist of such remarks into one of the official languages.

XIII. The acting president shall conduct the business of each meeting according to the parliamentary rules generally accepted in deliberative assemblies.

XIV. Medical students, and other persons, ladies and gentlemen, who are not physicians but who take a special interest in the work of a particular sitting, may be invited by the president or be allowed to attend the sitting by special permission.

XV. Communications or enquiries regarding the business of separate sections, must be addressed to the managing members thereof. All other communications and enquiries must be directed to the General Secretary, Dr. Lassar, Berlin, N. W., 19 Karlstrasse.

CHICAGO.

Chicago! There must be magic in that word. From the time a little village located itself by the lake and said its name was Chicago, there has been a succession of surprises in connection with the place.

One thing after another has brought her prominently before the world, till to-day she is the most renowned city on the continent. The country has come to look upon Chicago as the embodiment of all that is progressive, enterprising and substantial in our modern civilization.

The other day, at the National Capitol, she received another endorsement of the nation's confidence and esteem. In the face of vigorous opposition from three of the most powerful cities in the United States (not to say anything of Cumberland Gap), she secured the honor of having the World's Exposition located at her gates.

This was a tribute from the American people which Chicago never can afford to forget. It was a compliment to her ability, an admission of her greatness, and an advertisement to the world that she is *the* representative American city.

Chicago may well accept with pride the honor conferred upon her; she may well be grateful for what the nation has done. And she is grateful. She appreciates in full measure the distinction, and invites every American citizen to join with her in making the Exposition the greatest success of the century.

In this connection it is pleasing to remember, that in the movement which terminated so successfully for the interests of Chicago, her dentists took their proper part.

When the subscription books were opened they came forward with a unanimity which was a credit to them individually and collectively. They proved what concerted action would do, and gave an earnest of their public-spiritedness.

Now let us see if they will keep up their reputation in this direction. It has been settled that the Exposition will be held in Chicago, and at that time we will have in our midst a representation of all the progressive interests of the world.

Shall dentistry be left behind? It depends greatly on the harmony among the dentists of Chicago whether this be so or not. Whatever our dentists undertake to do unitedly is always well done. We know nothing of half measures.

The twenty-fifth anniversary of the Chicago Dental Society in February, 1889, was the most successful meeting a local society ever held. May we not eclipse our record in 1892?

Let us emulate in our profession the spirit of the citizens of Chicago. They have said to the world: "We are going to have an Exposition.

We will do our best to make it a success, and we invite the co-operation of every son of Adam to the end that this be not merely an American Exposition, but in its truest sense a World's Exposition."

Let us in turn say to the profession: "We are going to have a dental meeting. We will combine unitedly to make it a success. We invite every honorable member of the profession the world over, to the end that this be not merely a national but an international meeting."

We appeal to the honor, the public spirit, and the professional pride of every dentist in Chicago to unite in extending this invitation.—*The Dental Review*.

A SENSIBLE CONCLUSION.

THE RED LINE ALONG THE GUMS.—Taking into consideration all the facts, I am forced to the conclusions:

That while the original observer of the red line in phthisical patients was correct in observation, he was incorrect in his deductions therefrom. The line itself is explicable on other and more reasonable grounds. A simple coincidence was mistaken for an associated condition.

That the line is not a diagnostic sign of phthisis at all, but of a disease of the gums.

That, unfortunately, one cannot diagnose a case of phthisis by an examination of the gums.

That aside from tubercularization, lead poisoning and scurvy, a changed gum line, in the present state of our knowledge, is not diagnostic of phthisis, nor of any other systemic disease.

That as a disease of the gums, the red line may be a local disease from neglect of the teeth, which may find a genuine predisposition in general connective-tissue relaxation.

That the red line along the gums, which can probably be found in any disease, gives rise to sufficient debility to cause a loss of general tissue tone, if sustained long enough to allow of a deposition of dental *débris* between the gum edges and the teeth.

That in cases of hæmoptysis, where neither cardiac nor pulmonary lesions are discoverable by physical exploration, the gums should be examined.

That the exact value of the red line along the gums as a diagnostic sign of phthisis is naught.

That the red line is significant of disease of the gums, due to improper care of teeth, excessive accumulation of tartar, or to general systemic tone-relaxation, of which the red line is simply a local manifestation.—*Snader, in Hahn. Monthly*.

HOW TO TAKE A WAX IMPRESSION.

Heat the wax until it has about the consistency of dough, then proceed in the usual way to make the impression, pressing the wax moderately against the ridge. Remove carefully, and with a hot knife cut away the surplus wax, cool slowly, and when quite hard replace in the mouth, holding it solidly to place with the fingers, at the same time pressing hard and thoroughly against the labial and buccal aspects of the ridge with the thumbs until the gurgling of saliva ceases. Now, if the impression feels tight to the patient, it should be carefully removed; but should it fail to adhere tightly, it should be pressed more heroically, until it will remain in position without ulterior support. A re-insertion of the impression in the manner described, after it has cooled, produces an astonishingly successful result. This method applies especially to full cases, 90 per cent. of which can be successfully worked. It is simple; try it. —*Dr. A. N. Coates, in Ohio Journal of Dental Science.*

PRACTICAL HINTS.

The trying of every case in the mouth before completing it is unnecessary. I only try in such cases as I consider difficult ones. Try to acquire the habit of setting up teeth so that you will not have to depend on your patients returning to assure you that they are satisfactorily set in position. If you so commence, by trying in every case, you will never make much headway; for instead of adjusting your teeth at first, you will contract the habit of postponing all that work until your patient comes to go through the trying-in act, and after it is all done, you have not accomplished more than could have been done without a trial, had you learned to carry the features of your patient in mind when you took your impression and articulation. Gentlemen, my advice to you is this: when you grind a tooth, grind it to remain, and feel assured that you have set it in a position where a change will not be necessary.

In grinding gum block teeth, I prefer a V-joint, as I believe it is more easily kept clean than a flat one. I always pack my joints on both sides, palatine and labial, with plaster, the labial side always before flasking.

In packing partial cases with black rubber, you will often notice that after they are vulcanized the rubber has drawn away from the pins and left the tooth in a loose condition. To avoid this, pack around the pins a small piece of *red* rubber, and you will have no loose teeth, there being less contraction in the red than black rubber, thus affording a better hold on the pins.

For dies I believe the best metal that can be used is Babbitt's, or anti-friction metal, as there is so little contraction. 'Tis true that it is four times as expensive as zinc, but the good results obtainable by the use of Babbitt's metal offset the extra expense.

The best substance to use for making molds in which to cast dies, is marble dust. It is clean, and as it absorbs considerable moisture from the atmosphere, can be kept in a moist condition without much trouble.

Never be in too great haste, either to solder, or to take out a piece from the investment before it is cool. If you are, you will surely meet with some misfortune. Always heat your case slowly upon a lamp stand, or in a furnace before using the blow-pipe, and when you commence using that instrument throw the flame, not on the plate, but on the plaster investment, until you notice the surface of the plate getting red, then direct a large flame upon the plate, gradually reducing it in size until the solder fuses. I follow this method in all cases, whether for one tooth or fourteen.

After soldering, care should be taken not to place the case in a draught, or to blow upon it; simply let it cool slowly. I have now followed this method for five years, and during this time I find, after looking over my books, that the number of teeth on which I have used the flame were above a thousand, and of all that number I can only remember of five teeth which cracked.—*Extract from W. M. Bartlett's Paper, in Archives of Dentistry.*



DIRTY INSTRUMENTS.

It is curious that the remarks which we published in these columns a fortnight ago upon the subject of the use of antiseptics by dentists should have so speedily been confirmed, at all events in one particular instance. We expressed the opinion that unless the instruments used by dentists were kept antiseptically clean, it would be quite possible for certain diseases—as, for example, syphilis or diphtheria—to be transmitted from one patient to another during the progress of dental operations. Lancereaux has just recorded the death of a lady of 36 years, who came to him suffering from syphilitic lesions which had their origin in the mouth after a dentist had been attending to her teeth. He forcibly points out that dentists and hairdressers should use the greatest care in keeping their instruments rigorously clean; and as it is impossible to have special and separate instruments for each person, cleanliness should be secured by immersing them in disinfectants, especially in the case where the forceps and so forth are in frequent use by dentists. He records at the same time another case—that of a man of 53 years, with an acneiform syphilide contracted after catheterism of the Eustachian tube. Further comment upon this subject is unnecessary; the facts speak for themselves.—*The Journal of the British Dental Association.*

THE CRUEL DENTIST.

The hard-hearted dentist will pull you a tooth
 With never a tear in his eye ;
 " Oh, if I should pity my victims, forsooth,
 I'd always be ready to cry ! "

He'll smile you right down in that " wonderful chair "

And wrap you around with the grace

Of a Brummell, with shield of linen so fair—

But scarcely more white than your face !

He'll dig a deep hole in your quivering jaw

And level it off with a spade ;

He'll pound with a hammer—he'll saw with a saw,

For that is a part of his trade.

He opens your mouth from the North to the South

And puts in a horrible " dam ! "

Builds a curious bridge to reach quite across

And fills it with teeth—if he can.

He'll take all your silver—he'll pay you in *gold*,

But give you one dollar for ten !

Take houses and lands—then, when you are old,

You'll have no more teeth than a hen !

And when you are sorry that " life is no good,"

Because you are old and *so* poor ;

When he's got all your money, shed all your blood,

He'll smile you right out of his door !

—*M. L. Harrington, in Buffalo Express.*

AN AMUSING (?) SCENE (says the *Electrical Review*) was witnessed recently in Paris. In the evening the horses which passed along the boulevard at the top of the Rue Louis le Grand seemed seized with vertigo, jumping about like sheep. The disorder among the traffic soon became so great the police officials had to stop the traffic. The cause of the trouble was soon discovered. One of the electric cables placed under the thoroughfare, and leading to a lamp-post placed on a refuge, had become disarranged, and, coming in contact with the damp wooden pavement, the horses in passing over it, received a shock. Some of the company's workmen were soon on the spot, and restored things to their normal condition. The next morning, however, slight shocks, it is stated, were experienced at the same place.

TESTING THE VERTICALITY OF THE EIFFEL TOWER.—In the erection of the upper portion of the Eiffel Tower, it was found that plumb-lines could not be trusted, owing to the vibration caused by air-currents. It was, therefore, decided to have recourse to the theodolite, and to determine by its aid whether the central lines of the four faces were at all points in the principal planes of the tower. By principal planes is meant the vertical projections along two lines at right angles intersecting in the centre of the plan of the tower. On account of the difficulty of marking the central points on the tower, this method of testing its verticality was not found applicable. The difficulty was, however, obviated by sighting to the centres of the faces, points which, as a rule, have a distinctive character, instead of to marked central points. If the theodolite is so placed that when its telescope is rotated, the centre of the cross-wires coincides with two points in the horizontal plane of the line of section, the vertical wire will cut the tower in a line following the direction of the principal plane. The testing of the verticality of the tower then consists merely in ascertaining whether the central line of the face actually coincides with the determination of the vertical plane. This is a very simple operation; but one susceptible of very great precision. If the observation is made on the four faces of the tower, and the coincidences of the two lines are found to be exact, it necessarily follows that the axis of the tower is absolutely vertical. For the test to be conclusive, the theodolite must, at each observation, be set up with great accuracy in each one of the principal planes. In this manner the verification of the verticality of the tower was actually effected, the results obtained being perfectly satisfactory.—*M. E. Thuasne, in Nouvelles Annales de la Construction.*

AN ARAB DENTIST.—We quote the following from the *Palace Journal*: —“Sir Henry Layard, in his recently published ‘Early Adventures,’ says that on the occasion when in the desert he was suffering greatly from the toothache, and the sheikh having declared that there was a skillful dentist in the encampment, ‘I made up my mind,’ he says, ‘to put myself in his hands rather than endure it any longer. He was accordingly sent for. He was a tall, muscular Arab. His instruments consisted of a short knife or razor, and a kind of iron awl. He bade me sit on the ground, and then took my head firmly between his knees. After cutting away the gums he applied the awl to the roots of the tooth, and, striking the other end of it with all his might, expected to see the tooth fly into the air. But it was a double one, and not to be removed by such means from the jaw. The awl slipped and made a severe wound in my palate. He insisted upon a second trial, declaring that he could not but succeed. But the only result was that he broke off a large piece of the tooth, and I had suffered sufficient agony to decline a third experiment.’”

SUBLIMATE-LANOLIN AS AN ANTISEPTIC. — Koch and Wolffhügel, having shown that carbolic acid dissolved in oil or alcohol is devoid of disinfectant power, it follows that antiseptics should be applied in some other form; for instance, in watery solution. But it is often desirable to employ them in the form of ointments, and herein the peculiar value of lanolin has been demonstrated by Dr. A. Gottstein, in a series of experiments carried on in the Pharmacological Institute of Berlin. Lanolin possesses the property of taking up large quantities of water, whence it results that substances may be uniformly mixed with it that are insoluble in fats. Again, Gottstein has demonstrated the important fact that lanolin is indestructible by micro-organisms.

He ascertained that carbolic acid, thymol and menthol, incorporated with lanolin in proportions, as 5 per cent., were absolutely ineffectual as antiseptics. On the other hand, a lanolin ointment containing corrosive sublimate was equally efficacious with a watery solution. In his researches he added to anhydrous lanolin a determinate quantity of sublimate solution, 1 to 1,000 or 1 to 5,000.

The author enumerates several advantages from the use of sublimate-lanolin: 1. A minimum quantity of the antiseptic is required. A moderate-sized superficial wound, *e. g.*, may be covered with about 0.5 gramme ($7\frac{1}{2}$ grains) of the ointment mass, containing about 0.5 milligramme ($\frac{1}{130}$ grain of the salt; whereas, in irrigation of the wound, if about $\frac{1}{2}$ litre (14 fluid ounces) are used, 0.5 gramme ($7\frac{1}{2}$ grains) of the antiseptic are allowed to flow over the absorbent surface, *i. e.*, 1,000 times the quantity. 2. The salve comes into more intimate contact with the surface than the less-adherent watery solution. 3. Its influence is not temporary, but continuous. 4. The ointment acts as a protective against atmospheric contact.—*Wiener Med. Blätter*, October 24, 1889.

FASHION IN TEETH AS WELL AS IN FORM.—White and evenly placed teeth appear to us the chief ornament of the mouth; but all nations have not the same opinion. To the Siamese, black teeth are the handsomest; it is their daily care to blacken them. In Macassar, yellow and red teeth are esteemed above white or black ones. The women of Macassar spend a part of the day in painting their alternate teeth red and yellow. Among the Jaggas, the absence of the two upper incisor teeth is a condition of beauty. The woman who lacks sufficient courage to have them drawn would be despised, and would be unable to find a husband. Many women, led by coquetry or a desire to please, have four front teeth drawn instead of two, and are sure to find adorers. In one country a thick neck, short and buried between the shoulders, is admired; in another it is a long and slender neck that is most esteemed. In certain

localities in the Alps an enormous goitre has its charms; a woman without this appendage could not be married. Neither is there unanimous agreement in regard to what constitutes beauty of form. The Turks and Germans require stoutness in a woman; the Japanese and Chinese demand thinness. The former are fond of thick and large waists. Nor have we the right to smile at the preferences of these people, for do not we, who consider ourselves past-masters in point of good taste, at one time find beauty in a large waist, simulated by a girdle clasped under the arms, and at another in a wasp waist, whose ridiculous length encroaches on the hips?—*The British Journal of Dental Science.*



DR. G. A. BOWMAN says painless dentistry is a misnomer. There is, in the nature of the case, no such thing. We, as dentists, are working upon as highly organized tissue as there is in the body, with implements no softer than steel. Then how can we, or our patients, be deceived into believing that operations on these organs can be made absolutely painless? It's a mistake.

Pain is manifold, in kind and degree. Mental suffering is, many times, far more painful to bear than physical suffering; and thus our patients suffer when they think of paying us a visit, long before they take a seat in the chair, which focalizes and intensifies their agony. The first thing to allay is this dread; this mental monster must be laid low, through sympathies and kindness, assurance that the Philistines are dead, and friends are near. Gentleness, quietness; let everything that pertains to the operation be kept in the rear. Have something patients can see that will amuse or delight them; let sunshine into your operating room; be cheerful yourself. There is no one rule which, followed, will bring peace; nor one medicament which will in all cases obtund sensibility; but much suffering can be avoided by using the means already suggested by previous speakers.

Dryness, warm air, and warm applications: even these give more or less pain, unless adroitly used. Caustic-potassa is most *heroic*, and most useful. * * *—*Archives of Dentistry.*



OBITUARY.

DIED.—In East Bloomfield, Ontario County, N. Y., January 31, 1890, of fatty degeneration of the heart, Richmond Simmons Hayes, in the sixty-seventh year of his age.

Dr. Hayes was born in Clinton, Indiana, March 6, 1823, and came to New York State about 1825. He received his education at the Canandaigua Academy, and subsequently attended a course of lectures in

medicine at the Woodstock (Vermont) Medical College. He settled in LeRoy, Genesee County, N. Y., in 1855, and engaged in the practice of dentistry. During the War of the Rebellion he was surgeon of the 129th N. Y. Infantry, and also of the 8th N. Y. Artillery, stationed at Fort McHenry. After leaving the army, about 1865, he commenced the practice of dentistry again, this time locating in East Bloomfield.

Dr. Hayes was ill but a few days, having had a severe attack of the prevailing "Grippe," which aggravated the terminal disease.

Dr. Hayes was above the average in dental skill, conscientious in all his operations, and upright in all undertakings. He possessed mechanical ability of no ordinary character; which, coupled with an inventive turn of mind, rendered his productions of great value to his patrons.

In church and other organizations he was active in all that would further their interests, and was always to the front, doing duty in harmony with his convictions of equity and justice to his fellows.

DIED, in Centralia, Boone County, Mo., November 8, 1889, of typhoid fever, Jefferson D. Hulen, in the twenty-ninth year of his age.

Dr. Hulen was born in Monroe County, Mo., near Middlegrove, in 1861, and began his studies in dentistry at the age of twenty, in Moberly, Mo., in the office of Dr. W. K. Christian. He subsequently attended the Missouri Dental College, in the class of 1882-83. He began the practice of dentistry with his brother, Dr. J. A. Hulen, in Centralia, Mo., in the spring of 1883, and remained there until his death. Modest, capable, and obliging, he soon acquired a very good practice, and made many warm friends. He was a member of the Christian Church, and was extremely conscientious and faithful in the discharge of every duty. In his death the profession has lost an earnest and proficient member, whose qualities of heart and mind endeared him to all who knew him. He leaves a wife, and a daughter of five years of age.—*Dental Cosmos*.

COW-BOY DENTIST.—Henry Dixey says that he was once playing in a small Texan town during his early stage days, and having suffered tortures with an aching tooth, at last decided to have it out. On inquiry he learned that the only dentist there was an alleged Indian doctor, whose office was located in a tent in the outskirts of the town. The fellow was an Indian only in dress, however, for in reality he was a type of the untamed cow-boy of the plains. "My tooth has been paining me dreadfully," began Dixey, as he seated himself on the only campstool in the tent, "and I want you to give me ether, doctor." "Ether," roared the cow-boy dentist, as he swung a huge wooden mallet around his head, "Ether be blowed! We stun 'em here."

THE DENTAL ADVERTISER.

CONDUCTED BY THEO. G. LEWIS, D.D.S.

BUFFALO, N. Y., APRIL, 1890.

ANÆSTHETICS AND ANODYNES.

Judging from the number of patents granted for anæsthetics and anodynes for the relief of pain in the extraction of teeth, there must be a growing demand for such preparations, or an epidemic of investigation in that line. For the quarter ending with March, we find in the *Patent Office Gazette*, three patents for anæsthetics and anodynes. We give abstracts of the specifications as far as they relate to the medicines used in the compounds.

Dr. Eugene F. Jaques, Burton, Ohio: My invention is in the nature of an anæsthetic, to be applied locally by hypodermic injection, and it is specially designed for use in the extraction of teeth.

In compounding my anæsthetic, I take the following ingredients: hydrochloride of cocaine (erythroxyton coca), two grains; carbolic acid (acidum carbolicum), one minim; oil of wintergreen (oleum gaultheriæ), three minims; oil of mustard (oleum sinapis), one minim; alcohol (spiritus purificati), two minims; pulverized boric acid (acidum boricum, pulv.), one grain; distilled water (aqua distillati), forty-nine minims; and oil of cajeput (oleum cajeputi), one minim.

The manner in which I mix and compound these ingredients may be described as follows: I first mix together two minims of alcohol, three minims of oil of wintergreen, one minim of oil of mustard, and one minim of oil of cajeput. I then mix together forty-nine minims of distilled water, one grain of pulverized boric acid, one minim of carbolic acid, and two grains of hydrochloride of cocaine; and finally, I mix the entire mass together.

I apply my anæsthetic locally, by means of a hypodermic syringe, in the well-known manner, using from two to twelve drops to a tooth. applied to both the inside and outside of the tooth, piercing the gum under the mucous membrane surrounding the tooth; thus producing insensibility to the part applied, enabling the operator to use the lancet, making the tooth more accessible, and the operation more sure.

Dr. Alfred Clark, Montpelier, Vt.: Composition of matter to be used for removing the sensibility of the gums and jaw in extracting teeth, of which the following is a specification:

My composition consists of the following ingredients, combined in the proportions stated, viz. : Chloride of sodium, two grains ; hydrochloride of cocaine, two hundred grains ; chloral, one grain ; essence of peppermint, one grain ; and carbolic acid, one-half grain. The dose for use when teeth are to be extracted must vary with the case in hand, as from two to five minims. The salt in this composition lessens the soreness and swelling of the jaw.

*The carbolic acid is useful in cleansing any ulcer or abscess, and will hold nausea in check. The peppermint, as well as the carbolic acid, will resist this feeling of sea-sickness which cocaine alone might cause.

If the cocaine were used alone, it might also cause a swelling of the tissues of the jaw and face. These ingredients are to be thoroughly mingled by agitation. In using the above-named composition, apply it to the gums near the teeth to be extracted, and also inject it into the gums from three to seven minutes before beginning the operation of extracting the teeth.

By the use of the above-named composition, the sensibility of the gums and jaw is removed, and the teeth extracted without pain to the patient, who retains his or her senses unimpaired. Invalids suffering from heart disease, or other ailments that prevent the use of chloroform, ether, or gas, can safely use the above composition, and in many such cases the patient will receive positive benefit from its use.

Dr. Robert A. Graham, Carrollton, Ohio : My object is to provide a simple, safe, and effective compound, adapted for use in the practice of dentistry, or for minor surgical operations, which will render painless the extraction of teeth, and at the same time will not in any wise affect the health of the party upon whom it is used.

My improved compound consists of the following ingredients, combined in the proportions stated, viz. : Alcohol, five and two-thirds drams ; glycerine, two and one-sixth drams ; tincture of aconite, one-sixth dram ; menthol, ten grains ; sulphate of cocaine, thirty-five grains. These ingredients are to be thoroughly mixed, and the compound should always be well shaken before using.

Where this anæsthetic is used for preventing pain in extracting teeth, three or four drops are injected into the gums on each side of the tooth with a hypodermic syringe, and from thirty to ninety seconds allowed to elapse before proceeding to extract the tooth. For minor surgical operations the compound is applied locally to the parts.

It is stated that the *Dental Record* (London) is to have a change in the editorship, Dr. E. Lloyd Williams retiring.

THAT NEW DRESS.

We like dress, and particularly new dress. And if it is redress, all the better. We like to see a journal in new dress. It shows prosperity and enterprise. Sometimes new dress is fantastic and recalls incidents in ancient history. There lies before us the *Items of Interest*, a jovial, jolly journal with one of the best-hearted editors in the world—if he is careless about credits. It is in a new dress with a picture on the front representing elegant dental apartments, designed to teach esthetics in this line, but we can't look at it without sympathy and horror coming over us at the same time. Facing the entrance to the reception room is the picture of a woman in the very agonies of the colic. She is appealing to the office-boy for help, and he is struck with wonder. Our desire, while looking at the picture, is to fly to her with the chloroform bottle or brandy, or ginger, or anything to relieve her.

Say, dear doctor, don't leave that woman in such excruciating agony. You are humane, and we beg you to relieve her. We have no sooner turned our eyes from this agonizing picture than they fall upon—Holy horror! What is it? Has the guillotine been brought forth, and are its ghastly deeds to be again enacted? Surely it must be so. And the first picture is our remarkable brother. What so atrocious has he done, that he should be beheaded and his ghastly visage placed as a perpetual warning? We turn away, and the dull thud of that murderous instrument still sounds in our ears. We are aroused from deep sleep by dreams soul-harrowing. Bloody Mary's harsh sentences are ringing in our ears. Come back to life, brother Welch, and remove that awful picture. Take it away! Take it away! Make yourself sitting in an easy chair, with the air of having had a good breakfast and a desire to give credit to whom credit belongs. Place the woman in a position of ease and comfort while she reads the latest magazines, or the daily paper—all about Reed, if she cares to read.—*Catching, in Southern Dental Journal.*

The changes in the panoramic view of a dental office, shown on the cover of the *Items of Interest* for the present year, form an item of the utmost interest, and we anxiously await further developments. In January, it would appear that the venerable editor, notwithstanding his staunch advocacy of the cause of temperance, had gone on a bust, and Brother Catching has described in moving terms the woes of the colicky female who apparently is making an appeal to the office-boy in the Chinese shirt, for information as to where the editorial bottle is kept. In February, it appears that the editorial bust is over, and in lieu of the apparition is a pile of volumes, presumably temperance tracts, containing the experience of the busted. The office-boy has disappeared, as has also the distressed female. Brother Catching's mind has ceased to be further disturbed by the "dull thud," and peace and harmony reign supreme in the once turbulent editorial atmosphere of our contemporaries. The altered cut reflects credit upon the engraver, who seems to be especially skillful in taking off heads.

BUFFALO DENTAL INFIRMARY.

At the regular monthly meeting of the Buffalo Dental Association for September, 1889, Dr. Charles S. Butler read a paper urging the society to establish and maintain a Dental Infirmary for the gratuitous treatment of those suffering from dental irritations. He believed the time had come for the profession to undertake something in the line of philanthropic work, and as there was no such institution in the country as far as known, urged with special emphasis that the Buffalo Dental Association be the first to engage in it.

The paper was freely discussed, and while the idea seemed to be new to most of the members it was deemed unwise to commit the society to the project; but sufficient interest was aroused to continue the agitation, which resulted in the formation of the Buffalo Dental Infirmary Association, as a department in the Fitch Institute, and which was opened for the reception of patients on the 20th of January, 1890.

On each afternoon in the week, except Sunday, the department is open from 4 to 6, with a competent dentist in charge, and it is intended to do all kinds of dental work necessary for the immediate relief of suffering.

Thus far many patients from among the poor and destitute have been relieved, and the members of the Infirmary Association are hopeful of doing much good to the worthy poor of the city, and at the same time broaden and elevate themselves in the true professional sense.

The following named gentlemen constitute the board of officers for the ensuing year: Dr. Alfred P. Southwick, president; Dr. Milton B. Straight, 1st vice-president; Dr. Samuel A. Freeman, 2d vice-president; Dr. Charles S. Butler, secretary, and Dr. Theodore G. Lewis, treasurer.

DENTAL PROTECTIVE ASSOCIATION.

NEW YORK, January 16, 1890.

In a mass meeting of over one hundred dentists, gathered from various parts of the United States, held in New York City, January 16, 1890, of which Dr. O. E. Hill was chairman, it was, on motion, unanimously

Resolved—That we thoroughly endorse the Dental Protective Association of the United States, and urge every member of the dental profession to join the association, and to send to Dr. J. N. Crouse, of Chicago, its President, the initiation fee of ten dollars.

WM. JARVIE, *Secretary*.

In a recent communication from Chicago, we are assured that the Dental Protective Association is progressing finely. A large membership has been secured, and the officers claim to have evidence antedating

the famous bridge work patents. Our informant says that the Tooth Crown Company has not sued any member of the Dental Protective Association for infringement, nor have they proceeded with the suits taken charge of by the Protective Association. We are also informed that there is not a licensee in Chicago, although there are many dentists doing crown and bridge work in that city. For further information, address Dr. J. N. Crouse, 223 Prairie Avenue, Chicago, Ill.

MEDICATION FOR PYORRHOEA.

We have used an alcoholic solution of salicylic acid for some time, as one of the remedies for treatment of pyorrhœa alveolaris and inflamed gum margins, with fair success, but have always found it difficult of application, owing to its tendency to spread to adjacent parts. In experimenting to obviate this spreading proclivity, and at the same time to further the remedial properties of the medicament, we have settled on the following mixture and have found it to be, after six months' trial, a really useful corrective:

R Salicylic acid crystals—alcohol, *q. s.* to make saturated
 solution, 5 j
 Oil Eucalyptus, 5 vj

The salicylic acid should be made from oil of wintergreen, and by some such reliable makers as the William S. Merrell Chemical Co., of Cincinnati, Ohio. The salicylic-eucalyptus preparation is best applied to pyorrhœa pockets by a wisp of cotton wound on a flexible broach. It does not spread, is agreeable to the patient, and is efficient in its results.

A CASE is related of a woman aged ninety-eight, a resident of Anglesey, (Wales), who recently cut three new teeth. It appears that the eruption of the new teeth was attended with rather peculiar results, as she died soon after. However, as she was the mother of thirteen children, it might have been the unlucky number of progeny that prevented her reaching the even hundred years—and not the cutting of the teeth, after all.

THE NEW YORK STATE DENTAL STUDENTS' SOCIETY JOURNAL, *The Record*, mentions an experiment of the late Seth Green, of Rochester, N. Y., the fish-culturist, on a voracious trout which had a propensity for biting its companions. Mr. Green extracted a few of the trout's teeth and the biting ceased. This item is quite interesting, but is hardly an item of news, as the much respected Seth Green died August 20, 1888.

MINNESOTA DENTAL LAW.—Chief Justice Gilfillan, of the Supreme Court of the State of Minnesota, rendered a decision December 2, 1889, affirming the constitutionality of the Minnesota dental law. Judge Gilfillan concludes that “the provisions and requirements of the law are undoubtedly rigorous. They ought to be in any law aiming to protect the public against ignorance and incompetency. * * * * We see nothing in the provisions of the law that was not clearly inserted by the legislature in good faith to effect the end in view. The law is valid.”

THE TOPICAL INDEX of the *International Dental Journal*, for the year 1889, just issued, is very complete, and forms a valuable addition to the volume.

VICK'S FLORAL GUIDE.—We have received from James Vick, Rochester, N. Y., his *Floral Guide*, which in beauty of appearance and convenience of arrangement surpasses anything in this line which we have ever had the privilege of seeing before. It is a pamphlet eight by ten inches in size, and with the covers, which are by no means the least important part of it, contains an even one hundred pages. Although called a “floral guide,” it is devoted to vegetables as well, and includes as full a list and description of flowers, vegetables and small fruits as could be brought within the compass of a book of this size.

WHO WAS YOUR GREAT GRANDFATHER?—The *Detroit Journal* desires to receive, by postal card, the addresses of all living male and female descendants of Revolutionary officers and soldiers of 1776, and, when possible, the name and State of the ancestor. The purpose of the information is said to be strictly legitimate.

MISSING NUMBERS of nearly all American dental journals can be supplied by Dr. S. A. Freeman, 641 Main street, Buffalo, N. Y. Dr. Freeman would like to correspond with any one desiring to sell back numbers of dental journals, or exchange for missing ones to complete their files.

“AMERICA has given to France a true gentleman, and an excellent dentist in Dr. J. E. Cravens.”—*Southern Dental Journal*. This is more than can be said of some of the members of the Dental Section of the International Medical Congress in Washington, after Dr. Cravens had read his paper on Management of Pulpless Teeth.

DENTISTS' SOCIETIES.

ALABAMA DENTAL ASSOCIATION.—Birmingham, April 8, 1890.
 EIGHTH DISTRICT DENTAL SOCIETY.—Buffalo, N. Y., April 15, 1890.
 KANSAS STATE DENTAL ASSOCIATION.—Topeka, April 30, 1890.
 IOWA STATE DENTAL SOCIETY.—Dubuque, May 6, 1890.
 TEXAS STATE DENTAL ASSOCIATION.—Buton, May 6, 1890.
 NORTHERN OHIO DENTAL ASSOCIATION.—Canton, May 13, 1890.
 GEORGIA STATE DENTAL SOCIETY.—Tybee, May 13, 1890.
 ILLINOIS STATE DENTAL SOCIETY.—Springfield, May 13, 1890.
 DENTAL SOCIETY OF THE STATE OF NEW YORK.—Albany, May 14, 1890.
 NEBRASKA STATE DENTAL SOCIETY.—Beatrice, May 20, 1890.
 KENTUCKY STATE DENTAL ASSOCIATION.—Louisville, June 3, 1890.
 MICHIGAN STATE DENTAL ASSOCIATION.—Jackson, June 7, 1890.
 INDIANA STATE DENTAL SOCIETY.—Indianapolis, June 24, 1890.
 NORTH CAROLINA STATE DENTAL SOCIETY.—Wilmington, June 25, 1890.

ST. LOUIS DENTAL SOCIETY PROGRAMME FOR 1890.

April 1st—Dr. J. Warren Wick, "Bleaching Teeth." April 15th—Dr. George A. McMillan, "Dental Motors." May 6th—M. C. McNamara, "Preservation of Natural Teeth, by his own Method." May 20th—Dr. Wm. Conrad, "Removing Broken Instruments from Root Canals." June 3d—Dr. DeCoursey Lindsley, "Soft Foil." June 17—Dr. A. H. Fuller, "Professional Ethics." July 1st—Dr. George Robitoy, "Contour Fillings." September 16th—Dr. E. S. Ulman, "Neuralgia." September 30th—Dr. John J. R. Patrick, "Follies in Dentistry." October 21st—Dr. Henry Fisher, "Practical Dentistry." November 4th—Dr. John G. Harper, "Porcelain, and Porcelain Faced Crowns." November 18th—Dr. J. B. Newby, "Dentistry; Past, Present and Future." December 2d—Dr. A. J. Prosser, "Dental Education." December 16th—Annual Dinner.

DENTAL COLLEGE COMMENCEMENT.

The eighth annual Commencement exercises of the Dental Department of the State University of Iowa, Iowa City, were held March 10, 1890. The degree of D. D. S., was conferred upon T. G. Albin, St. Louis, Mo.; J. V. Anderson, Cambridgeboro, Pa.; F. J. Bethel, Denver, Col.; A. D. Barker, Grinnell, Ia.; Benton Bement, Lockport, N. Y.; C. E. Booth, W. Superior, Wis.; C. M. Cobb, Clear Lake, Ia.; C. E. Coleman, Decorah, Ia.; G. W. Cook, Hyde Park, Ill.; Charles Dorman, Manchester, Ia.; Andrew Dingwell, DeWitt, Ia.;

J. H. Dorival, Caledonia, Minn. ; F. E. Davoll, Madison, Dak. ; J. W. Gluesing, Moline, Ill. ; Nathaniel Glasgow, Maxwell, Ia. ; C. H. Gibson, Chaska, Minn. ; R. H. Guy Huntley, Mason City, Ia. ; J. G. Hildebrand, Waterloo, Ia. ; J. W. Hubbard, Muscatine, Ia. ; Harriet Mabel Jones, Winterset, Ia. ; W. H. Jallings, Washington, Minn. ; Claude Kremer, Mabel, Minn. ; F. B. Kremer, Caledonia, Minn. ; R. E. Lamoreaux, Ashland, Neb. ; F. H. Low, Waukon, Ia. ; W. B. Mandeville, Austin, Minn. ; Edward Morton, Iowa Falls, Ia. ; W. F. McDonald, Mt. Pleasant, Ia. ; Charles R. McCandless, Davenport, Ia. ; W. E. Mabee, Sheldon, Ia. ; G. C. Marlow, Lancaster, Wis. ; E. H. Naumann, Oxford Junction, Ia. ; H. O. Rogers, Ottumwa, Ia. ; G. W. Schwartz, M. D., Nebraska City, Neb. ; S. L. Seeley, Manchester, Ia. ; Richard Summa, St. Louis, Mo. ; W. H. Simpson, Bellevue, Ia. ; C. D. Tiffany, Mason City, Ia. ; E. A. Taylor, Villisca, Ia. ; P. L. Van Winter, Tacoma, Wash. ; H. Van Winter, Marshalltown, Ia. ; T. B. Wallace, Morrison, Ia. ; Hattie E. Wells, Perry, Ia.

BOOK NOTICES.

THE USE OF GAS AS A FUEL. By Thos. Fletcher, F. C. S. A Concise Guide to Fitters, Users, Inspectors, and Salesmen. Warrington, England. 1890.

This book of 71 pages contains concise directions for the operating and care of every description of gas burners and heaters for all purposes where gas is substituted for other fuel. The book is written by Mr. Fletcher, the noted gas engineer, in his succinct and comprehensive style, and contains a vast amount of information found in no other work. The following is a synopsis of contents: Acid condensation; adjustment of burners; altering burners; arming-press heating; atmospheric *versus* illuminating flames; automatic hot water service; baffling out of flame; baking bread; baths, gas consumption; bath heaters, rapid; bathroom service; blast furnaces; blow-pipe and ingot mould; blow-pipes; blowers; boiling burners; boiling; boilers; book finishers' tools; brazing; building Japanners' stoves; burners; cooking ranges; condensing stoves; condensed water from gas; combustion; core drying; cowls, chimney; crucible furnaces; crumpet plate; damp in ovens; disinfecting chambers; difficulties with flues; duty of boiling burners; fires, cost of; flueless stoves; flexible metal tube; flues; foot blowers; furnaces; fuel value of gas; gas fitting; gas, products of combustion; gas fires, duty of; governors; greenhouse heating; greenhouse heating, cost of; heat, standard unit of; heating power of gas; hot water for kitchen; hot water service, automatic; hot water pipes; hot blast, theory of; hosiery presses; instantaneous water heaters; India rubber tubing; ingot mould blow-pipe; instructions for greenhouse boilers; instructions for ranges; instructions for washers; instructions for water heaters; jacketing ovens; keeping a pan boiling, cost of; lavatory water heaters; lead melting; loss in heating metal vessels; leakage, detection of; making solder; meters, sizes made; muffle furnaces; new flues, making; noise in taps; ovens, moisture in; oxygen blow-pipe; oxidation, protecting from; pipes for heating; plant stove heating; proportion of burners; printers' presses; products of combustion; radiant heat; radiant heat, fires for; rapid

boilers; rapid bath heaters; rapid boiling; reducing ores; reverberatory furnaces; reinforcing gas supply; rule for calculating heating pipes; sheets, tinning; sixteen-candle gas, meaning of; silent tap; smell from burners; solder making; tea urns; unit of heat standard; ventilators; water of combustion; water heating; water heaters, lavatory; water condensed from gas; water boilers, for ranges; water heaters, instantaneous; warming plates; wastefulness of large ring burners.

ELECTRICAL RULES, TABLES, TESTS AND FORMULÆ. By Andrew Jamison, C. E., F. R. S. E. Fully illustrated. New York: The Industrial Publication Co., 1889.

This book of sixty-four pages is divided into nine sections, and contains brief descriptions of various kinds of electrical apparatus, with tables and rules for the proper guidance of users of electricity. We are not sufficiently expert in electrical science to judge of its merits, but the name of the author is a sufficient guarantee of its practicability.

Like most of the industrial publications, it is a very bad specimen of typography. It is wretchedly printed from plates that evidently have been used in England for a better edition. The binder has made a "botch" in trimming, and, taking the book as a whole, it is a very unsatisfactory specimen of the printer's art.

Just why "industrial publications" should be such inferior examples of bookmaking is beyond our comprehension. Is not the artisan who seeks knowledge in the literature of his trade as capable of appreciating artistic work as is a member of any of the professions? We presume the publisher would answer in the negative, and trim his sails, and his books, to that belief. We do not know of any publisher of professional books who would dare present such cheaply gotten up works to his patrons.

A PRACTICAL TREATISE ON ARTIFICIAL CROWN AND BRIDGE WORK. By George Evans. Second edition. Revised and enlarged, with 547 illustrations. Philadelphia: The S. S. White Dental Manufacturing Co., 1889.

On the appearance of the first edition we gave Dr. Evans' book a notice of merited approval. As regards the second edition, it is all that is claimed for it, and is certainly the only complete compendium of that most fascinating branch of the Dental Art—Crown and Bridge Work. The new edition has received a thorough revision, and is increased by the addition of some thirty or more pages of new matter. A point has been made that all of the illustrations have appeared before, either in recent text books, catalogues of dental material, or in dental periodicals. This statement, however, is not a fact; even in the first edition many of the illustrations were original with Dr. Evans, and in this second edition, nearly fifty new illustrations have been added, most of which are also original. To those who desire the best and latest information on "Bridge and Crown," we commend this work without reserve.

BOOKS RECEIVED.

FIFTH ANNUAL REPORT OF THE BOARD OF DENTAL EXAMINERS OF THE STATE OF MINNESOTA, to the Governor of Minnesota, December 15, 1889.

TRANSACTIONS OF THE DENTAL SOCIETY OF THE STATE OF NEW YORK. Twenty-first Annual Meeting, May, 1889.

DENTAL PATENTS.

ISSUED FOR THE QUARTER PRECEDING THE DATE OF THIS JOURNAL.

- 417,932—December 24, 1889.—PACKAGE FOR TOOTH POWDER.—James W. Morse, Chicago, Ill.
- 418,108—December 24, 1889.—DENTAL FISSURE DRILL.—Arthur W. Browne, Prince's Bay, N. Y.
- 418,380—December 31, 1889.—METHOD OF PREPARING PORCELAIN TEETH.—Aaron H. Parker and Arthur H. Stoddard, Boston, Mass.
- 418,492—December 31, 1889.—DENTAL PLUGGER.—William G. A. Bonwill, Philadelphia, Pa.
- 418,567—December 31, 1889.—DENTAL ANÆSTHETIC.—Eugene F. Jaques, Burton, Ohio.
- 418,662—December 31, 1889.—PROCESS OF ELECTROPLATING DENTAL PLATES.—Joseph G. Ward, Newark, N. J.
- 418,901—January 7, 1890.—DENTAL ENGINE.—Eli T. Starr, Philadelphia, Pa.
- 419,299—January 14, 1890.—DENTAL CHAIR.—Basil M. Wilkerson, Baltimore, Md.
- 419,381—January 14, 1890.—PNEUMATIC DENTAL PLUGGER.—Frederick E. Thomas and Robert P. Lennox, Cambridge, England.
- 419,675—January 21, 1890.—MANUFACTURE OF PADS FOR CLEANING AND POLISHING TEETH.—George F. Horsey, Utica, N. Y.
- 419,787—January 21, 1890.—DENTAL APPARATUS.—Samuel A. Milton, Clinton, Mo.
- 420,069—January 28, 1890.—DENTAL BRACKET.—John Hood and Stephen H. Reynolds, Boston, Mass.
- 420,186—January 28, 1890.—DENTAL ANODYNE.—Alfred Clark, Montpelier, Vt.
- 420,531—February 4, 1890.—TOOTH PICK.—Arthur O. Corey, Council Grove, Kansas.
- 420,532—February 4, 1890.—DENTAL PLUGGER.—Henry Craigie, San Francisco, Cal.
- 420,590—February 4, 1890.—VULCANIZER.—Charles A. Davis, Rochester, N. Y.
- 420,653—February 4, 1890.—DENTAL ANÆSTHETIC.—Robert A. Graham, Carrollton, Ohio.
- 420,745—February 4, 1890.—DENTAL PLUGGER.—Edward M. Stroud, Pittston, Pa.
- 420,876—February 4, 1890.—RUBBER DAM CLAMP.—Henry H. Johnson and Sylvester C. Hill, London, England.
- 421,116—February 11, 1890.—ARTIFICIAL DENTURE.—John A. Throckmorton, Sidney, Ohio.
- 421,250—February 11, 1890.—DENTAL FORCEPS.—Carter B. Dean, Norborne, Mo.
- 421,323—February 11, 1890.—DENTAL ENGINE.—Carl H. Seeger, Manitowoc, Wis.
- 421,952—February 25, 1890.—COMBINED DENTAL SEPARATOR AND MATRIX.—William H. Marshall, Oxford, Miss.
- 422,165—February 25, 1890.—DENTAL PLATE.—John J. Steadman, La Porte, Ind.
- 422,350—February 25, 1890.—ARTIFICIAL TOOTH.—Oliver Lund, Philadelphia, Pa.
- 423,205—March 11, 1890.—AUTOMATIC DENTAL PLUGGER.—Henry C. Ballard, Milwaukee, Wis.
- 423,239—March 11, 1890.—ARTIFICIAL TOOTH CROWN AND METHOD OF MOUNTING THE SAME.—William H. Gates, Philadelphia, Pa.
- 423,344—March 11, 1890.—DENTAL DRILL.—Andrew Retter, Utica, N. Y.

THE DENTAL ADVERTISER.

VOL. XXI.—BUFFALO, N. Y., JULY, 1890.—No. 3.

THE CARE OF THE VULCANIZER.

BY GEORGE B. SNOW, D. D. S., BUFFALO, N. Y.

The occasional reports of explosions of dental vulcanizers, accompanied as they are by more or less damage to property, and imminent risk of personal injury, renders the question of their avoidance one of considerable interest. Their entire prevention is an impossibility, so long as the management of the vulcanizer is entrusted to boys, or persons who know nothing and care still less about the properties of steam, or the rules upon the observation of which depend the safety and proper operation of the machine committed to their charge. It is seldom, if ever, that inquiry into the circumstances attending a vulcanizer explosion fails to elicit the fact that it was the consequence of gross carelessness or ignorance. The safety apparatus is often deliberately put out of order, and all the chances of an accident which may happen from a few moments' forgetfulness are taken by the operator, who probably knows about as much of the properties of steam as a christian scientist does of human physiology.

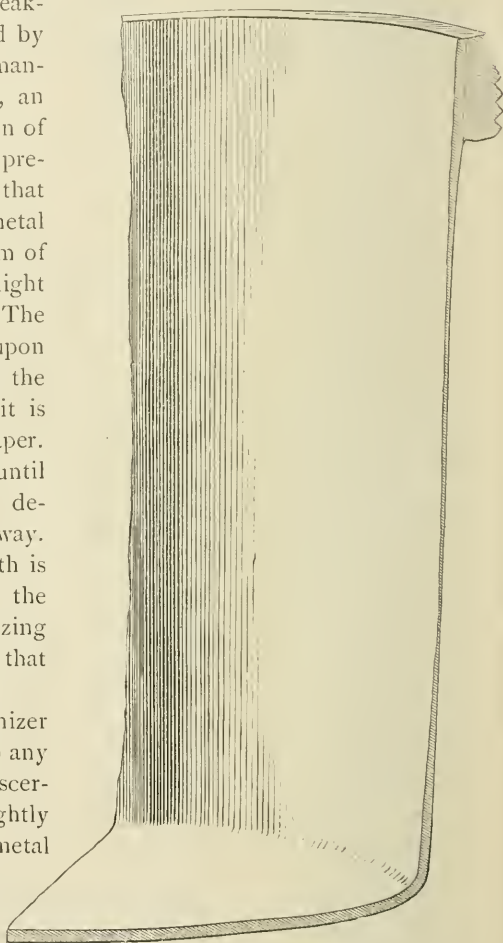
It is proposed, in the present article, to touch upon a few points in the matter of the proper care of vulcanizers, and more especially to show how and when they become unsafe by use. It seems to be the opinion of some dentists that a vulcanizer should remain good indefinitely; but it is often the case that one returned to the maker for supposed trivial repairs, is found to be in such condition that its further use would be attended with great risk.

Vulcanizers, as they leave the manufacturer's hands, may be depended upon as strong enough to withstand a pressure three or four times as great as that incident to the vulcanizing process. No house, having any

care for its reputation, can afford to put out one unless it is of undoubted strength. They are also provided with ample safeguards, by means of which they will be relieved from over-pressure, if it should occur. But no such appliance can be made which cannot be—either ignorantly or designedly—put out of order; neither can a vulcanizer be made so strong that it will be safe under any attainable pressure. It must be carefully and intelligently managed to insure safety.

Vulcanizers are gradually weakened and eventually destroyed by corrosion. To illustrate the manner in which it takes place, an engraving, made from a section of a condemned vulcanizer, is presented. It will be observed that the original thickness of the metal is fully preserved at the bottom of the pot, and that there is but slight deficiency at its mouth. The action has been almost wholly upon the sides, and at the middle the metal has wasted away until it is scarcely thicker than heavy paper. Still this vulcanizer was used until it had reached this state of deterioration, without giving way. This shows how little strength is really required to withstand the pressure due to the vulcanizing temperature, if care is taken that it be not exceeded.

When the sides of the vulcanizer are weakened by corrosion to any great extent, the fact is easily ascertained by tapping them lightly with a small hammer. If the metal is thick and strong, it will be elastic, and the hammer will rebound from a light blow, though of course copper would yield to a heavy one. When the metal is quite thin, the sensation will be as though the blow were delivered upon lead. There will be little if any rebound, and the metal will be driven in and dented by a very light blow.



SECTION OF CORRODED VULCANIZER.

Corrosion occurs to a certain extent from exposure of the vulcanizer to air and moisture. Indeed, it is by no means sure that the greater part of it does not thus take place. It is good practice to clean the vulcanizer pot, and wipe it dry before laying it away after use.

Another cause of failure in vulcanizers, one which happily occurs but seldom, is the cracking of the metal near the corner of the bottom. As the bottom is usually covered with scale, it may crack and even give way before the existence of any defect is suspected. This fact forms another argument for keeping the vulcanizer clean, as before mentioned.

When a screw fastening like that of the Whitney vulcanizer is employed, mischief is often done by the inordinate use of black-lead or soap-stone powder upon the packing joint, and incidentally upon the screw. The particles of which either of these powders are composed, are hard enough to wear away metal if placed between two rubbing surfaces, and in consequence the screw threads of vulcanizers are sometimes so worn that they have not sufficient hold upon each other to retain the cover; which on some fine day mounts to the ceiling, and disappears in the lath and plaster, much to the surprise and disgust of the owner.

The reason for applying soap-stone or plumbago powder to the surface of the packing seems, in many cases, to be entirely misapprehended. Its only office is to prevent the packing from sticking to the edge of the pot. A minute quantity only is required for this purpose, and its application need be made but seldom. If it is applied too liberally or too often, it will form a thick coating on the surface of the packing, which will be porous and will be the cause of leakage. When the coating attains any great thickness, it will scale off; and the leakage, which may have been almost imperceptible before, will now be increased to such an extent as to be annoying. Possibly the dentist does not detect the cause of the trouble, and, thinking that the vulcanizer "works hard," applies oil to the thread. This is burnt by the heat of vulcanizing, and the cover is virtually cemented to the pot. It is now removed with difficulty, if at all. As a rule, when the packing of a vulcanizer is in good order and steam-tight, the less that is done to it the better.

There is another matter connected with the management of the vulcanizer, which frequently causes great annoyance if not properly understood. If the vulcanizer is too full of water, not allowing adequate room for its expansion when heated, a pressure will be developed much greater than that due to the production of steam. The safety disk will in this instance be blown out, possibly at as low a temperature as 280° or 300° . Or if the safety apparatus be put out of order, the vulcanizer pot may be bulged and stretched out of shape, or a rupture may be the result, and a so-called explosion ensue.

It must be remembered that water is inelastic, and that when it is confined, with inadequate room for its expansion, the resulting force is

practically irresistible. It is an easy matter, if the vulcanizer be wholly filled with water, to obtain a pressure of six, eight, or nine hundred pounds to the square inch, without heating the water to the boiling point. Is it any wonder that they sometimes give way when carelessly used?

A safe rule is to allow one-sixth at least, better one-fourth, of the capacity of the vulcanizer for steam room. The user of a vulcanizer should never lose sight of the fact that it is a steam boiler, and is subject to deterioration by use. The rules for its management should be thoroughly read till clearly understood, and carefully observed, and after the vulcanizer has been in use for a time it should be inspected frequently, and any signs of weakness carefully noted.

"WHAT NEXT?"

BY A. DENT, D. D. S., NEW YORK.

A story is told of two sailors, seeking amusement in one of the inland towns in China, who happened to spy a sign, which read, "Necromancer upstairs." The strangeness of the name suggested that they go upstairs and see what this thing meant. When they reached the room they saw a number of queer-looking figures upon the side wall, and perched upon a cross-stick was a parrot, who had been taught to say in English, "That's pretty good; what will he do next?" A few moments' talk with the performer fixed the price for the fun, and the performance began, Polly interpolating after each trick, "That's pretty good; what will he do next?" While the performer went inside to change his toggery, Jack took out his pipe, struck a match, and carelessly threw it into a corner after he had singed his tobacco. The lighted match fell on top of a keg of gunpowder. The building went up, as well as all hands, and when the two tars were again seated, amid the ruins, they heard the Poll remark, "That's pretty good; what will he do next?"

The career of a number of dental students is finished at the college. They have smashed about everything they could lay their hands upon, they have torn up the matting, broken panes of glass, pounded their fellow-students, and behaved themselves in the coarsest manner describable. They have hooted at the professors, and made fools of themselves generally with cigarettes, beer, and dime museums, and during the lecture hours have done everything but pay attention or allow anyone else to, and as a reward for their inattention have at last taken the degree of D. D. S. After the excitement has subsided, the self-enquiry is, "What next?"

It might be remarked that the schoolroom is a little world of its own, and as a scholar acts there, so is he apt to conduct himself in the great

world without. The same senseless blundering in the work he does there will be characteristic of his life-work. He has his diploma, and his last dollar has gone for an evening dress suit, while his landlady, with whom he has confidential pledges, will wait for her board-bill until he gets into practice. The college now is dull as a churchyard, and about as interesting to him. The question before him is, "What next?"

During his college life he cherished the thought that his father, brother, uncle or aunt would let him have money to open an office. They have now thought better of it—concluded to wait until he has had a little more experience. They advise him to get into an office with a dentist of good practice, then they will see about it. He walks about the city from office to office. The first few days he is willing to work for \$35 or \$40 per week as a starter, and when he finds out that about two hundred gentlemen, qualified like himself, are, or have been, on the same mission, offering to work for any price, almost on any terms, he realizes one thing,—that the diploma cost about \$1,000, and that it is not the easiest thing in the world to get his \$1,000 back. His desperation and necessities put his professional brethren in a bad plight. He may be a good dentist, but has never earned his first dollar; and, as a matter of fact, he has no practical knowledge whether a filling is worth \$2 or \$10; whether a set of teeth can be made for \$5 or \$75. His general principle is to take what he can get. The student of medicine has a little better prospect; for he knows that it means \$2 a visit when he has a call, and in special cases, \$20 to \$25, and a dollar for an office fee. But the raw recruit from the dental college! Who will pay him for his advice? His work is accepted at first with great misgiving, and though it be well and creditably done, yet he must or he will for some years throw into his practice twice what he gets paid for, in order, as he thinks, to secure favor and patronage. He thinks he sees a short road to wealth—advertise; that's the idea. A great head! He does not know that advertising is an art, and to do it well is equal to anything he can do. Happy thought! A showcase, handbills, posters, and sets of teeth made while you wait! No charge for repairs, advice free, teeth extracted for twenty-five cents, for ten cents, and for nothing; nitrous oxide gas given away; sets of teeth for \$3 and \$5 up; teeth filled with gold for a dollar; amalgam, twenty-five cents. The advertiser also inserts that he is a D. D. S.; and after a few years of this wretched life, finding that he cannot profitably give advice free, or extract or fill teeth, and repair, at his advertised prices, he drops the job. The landlord, the tailor, the shoemaker, and the unpaid dental depot bills tell the story,—that he has made a fool of himself. But the egotism of D. D. S. never reaches that tranquility of mind by which he admits anything of the kind. Practice not so very good, but one thing is left—the female. Yes, he will

marry! He acts on the impulse, and marries a fool of a girl, whose parents have some means, or at least a front room for his office, a bedroom for himself and wife, and free board for a year or so, and once more he imagines he is on the road to wealth. He might even then succeed, were it not for his silly habits,—whisky, beer, cigars, cigarettes, horses, poker, the baseball and ticker, brag and laziness, and unwarranted liberties with female patients. This is not a fancy picture; the woods are full of them, and the sprigs are growing. Education is a good thing, but good morals and industry a great deal better.

The fact is, in the opinion of the writer, who has had an extensive experience with the class of whom he writes, that medical and dental degrees are too indiscriminately conferred. The N. Y. C. D. have young men within their walls who have matriculated at the age of sixteen, passed the curriculum at eighteen or nineteen, and are now waiting to arrive at twenty-one years to obtain their D. D. S. Under the law they cannot practice for themselves. No dental student should be permitted to matriculate until he is twenty-one years of age, and, as one qualification of matriculation, he should have an experience of one year or more in practical dentistry, and be recommended by a dentist to the dean of the college. And degrees should not be conferred upon poor young men, for the reason that their poverty brings the profession more or less in discredit. Suppose the dean asks the young man who applies for admission, "What are your prospects when you get through?" "Have you money enough to establish yourself in practice and live as a professional man should live?" "Are you able to take the position of a professional man after you have taken your degree?" If he says, No; that he is poor, had to borrow the money with which to go to college, owes for his board, etc., he ought to be rejected. This seems hard, but there are moral grounds for it. The profession should come from a privileged class of persons, whose poverty does not compel them to sell themselves and their neighbors for a mess of pottage.

The fees for a dental education should be increased. For the N. Y. C. D. to properly instruct two hundred and forty-seven students within its walls, the facilities should be at least twice what they are at present. This instruction nets the college, for the two years, including matriculation, dissecting ticket and diploma, examination, and the fees paid for a summer course, about \$62,000, and the income from the infirmary at least \$25,000 more. How much better it would be to raise the fee per capita to \$200 per term, to a select set of men of one hundred in number, and give them a full, complete course of dental instruction. The student who has paid his \$300 feels in his own heart that justice has not been done to him; he realizes this for the reasons stated. The college has not the capacity to do any more. The rooms are overcrowded, ventilation bad; the personal

discomfort experienced by one student is communicated to another, so that there is almost a continuous uproar. The time it would take a competent instructor to fit a student for the necessities of the profession is so great that \$300 per man would not pay him. As will be seen, the college instruction is cheap to the student,—\$300 or less; (\$255, with Dr. Stein's Quiz, \$25 extra.) The student requires two years' looking after to fit him to practice; and, if turned out a good dentist, he ought to make, if properly settled and located, from \$3,000 to \$5,000 a year. It will be seen at once that it is a small investment for a large income, if he gets there. The education is cheap, the instruction cheap; and as the student is rattled off with his parchment, his room being wanted, is it any wonder that he feels cheap when he is through? On commencement night much is said about a liberal education, and what a professional man should be. It takes money to attain that ideal, and that which is the same thing as money—time. The poor student or post-graduate is satisfied in most cases, as things are now, with bread and butter. The saying that the professional man only gets meat when he is too old to chew it, grows out of the fact that he was poor when he went to college, poor in college, and poorer when he got through. Professional men need capital to maintain appearances and self-respect; if they fail to have it, the result is too apparent. "What next?" is often a too-frequent query that a poor graduate is forced to solve.

TEXT OF DECISION REGARDING DENTAL LAW OF STATE OF NEW HAMPSHIRE.

ROCKINGHAM, N. H., June, 1889.

STATE vs. HINMAN.—A statute which requires that certain persons, before practicing dentistry, shall procure a license, and exempts others of the same class and profession, under similar circumstances, cannot be sustained under the Constitution of this State or of the United States.

CLARK, J.: This is an indictment under chapter 132, general laws, for practicing dentistry without a dental degree or license. The respondent demurred upon the ground that the statute is unconstitutional.

The object of the statute upon which the indictment is founded is to secure the possession of the requisite skill and learning by practitioners of medicine, surgery and dentistry. The possession of such special qualifications as to knowledge and skill is so essential to the protection of the lives, health and comfort of the people of the State, that it cannot

be doubted that it is within the power of the legislature to secure it by the enactment of such reasonable conditions as are calculated to exclude from practice those unfitted therefor. *Hewitt vs. Charier*, 16 Pick., 353; *State vs. State Med. Ex. Board*, 32 Minn., 324; *Eastman vs. The State*, 109 Ind., 278.

Is the statute repugnant to the Federal or State Constitution in any of its provisions? It is contended that it is in violation of section two of article four of the Constitution of the United States, and of section one of the fourteenth amendment to the Constitution, because it discriminates against persons engaged in the same business or profession, and denies to them the equal protection of the laws; and that it is in violation of article two, part one, of the State Constitution, which declares that all men have the natural, essential and inherent right of acquiring and possessing property and seeking and obtaining happiness. Section three of chapter 132, general laws, upon which the indictment is founded, provides that "It shall not be lawful for any person who is not duly authorized to practice medicine or surgery, to practice dentistry, unless such person has received a dental degree from some college, university or medical school authorized to confer the same, or shall have obtained a license from the New Hampshire Dental Society." Section six provides that "Each person receiving a license upon examination shall pay for the use of the society granting the same the sum of five dollars; upon diploma, one dollar." Section eight declares that "The provisions of the preceding sections shall not apply to persons who have resided and practiced their profession in the town or city of their present residence during all the time since January 1, 1875, nor to physicians residing out of the State when called into the State for consultation with duly licensed physicians, or to attend upon patients in the regular course of business."

While the power of the legislature to impose restrictions upon the exercise of certain trades and professions for the protection of the public is unquestioned, it must be exercised in conformity with the constitutional requirement that such restrictions must operate equally upon all persons pursuing the same business or profession under the same circumstances. The constitutionality of a statute cannot be sustained which selects particular individuals from a class or locality, and subjects them to peculiar rules or imposes upon them special obligations or burdens from which others in the same locality or class are exempt. *Cooley, Const. Limitations*, 391. The imposition of special restrictions or burdens, or the granting of special privileges to persons engaged in the same business under the same circumstances is in contravention of the equal right which all can claim in the enforcement of the laws and in the enjoyment of liberty and the right of acquiring and possessing property.

If the statute had declared that its provisions should not apply to persons practicing their profession in the city of Concord, such an arbitrary discrimination would be clearly repugnant to the principle of constitutional equality. The exemption of all physicians, surgeons and dentists residing and practicing their profession in Concord from the burden of procuring and paying for a license, and the subjection of all other persons practicing the same professions elsewhere in the State to the expense of purchasing a license, would be a palpable violation of constitutional rights. The exemption of the statute of persons who have resided and practiced their profession in the town or city of their present residence during all the time since January 1, 1875, or during all the time from January 1, 1875, to January 1, 1879, is no less in conflict with constitutional provisions. By an arbitrary test, having no reference to skill, learning or fitness for the practice of the profession, certain persons are exempted from the payment of a license fee to which others of equal and perhaps superior acquirements and experience are subjected. It is a discrimination founded solely upon the accidental circumstance of residence or of a change of residence, and falls within the prohibition of the constitution.

The village of Penacook is partly within the limits of the city of Concord and partly in the town of Boscawen. Suppose that on January 1, 1875, two persons, neither of whom had received a dental degree, were residing and practicing dentistry in that part of the village of Penacook within the limits of Concord. They continued in practice there until January 1, 1878, when both changed their place of residence, one removing a distance of six miles to the city of Concord, and the other removing a distance of a few rods to the Boscawen portion of the village of Penacook, and both have continued the practice of their profession in their respective places of residence ever since. Under the provisions of the statute the dentist who had removed his residence six miles is not required to procure a license, while the one who has removed a distance of a few rods is compelled to submit to an examination and pay a license fee of five dollars to enable him to continue the practice of his profession, because he changed his residence from Concord to Boscawen.

The statute also discriminates against citizens of other States. It does not apply to persons residing and practicing their profession in the same town or city in this State from January 1, 1875, to January 1, 1879, whereas persons who have resided and practiced their profession continuously since January 1, 1875, in the same town or city in another State, are required upon removing to this State to procure a license to practice their profession.

The constitutional objection to the statute is that it imposes the burden of a license fee upon certain persons and exempts others of the same class

and profession under similar circumstances and conditions. *Soon Hing vs. Crowley*, 113 U. S., 703; *Glick Wo vs. Hopkins*, 118 U. S., 356.

Demurrer sustained.

Justice Blodgett did not sit; the others concurred. Calvin Page appeared for the defendant, and Samuel W. Emery, Solicitor, for the State.

[We are indebted to Dr. W. L. Drummond, of New York, for the text of the decision in the case of *State of New Hampshire vs. Hinman*, printed above. It will be read with especial interest, as the Supreme Court of the State of Minnesota recently gave a decision affirming the constitutionality of the dental law in that State, which does not differ essentially from the New Hampshire or the New York State dental law. It now remains for the legal lights to reconcile these diverse decisions.—Editor DENTAL ADVERTISER.]

WHICH IS THE PROFESSION?

Passing through the street the other day, a hand-bill was thrust upon me, which read as follows, the "professor" in this case being an aged bootblack:

PROF. JOHNSON,

"SPECIALIST,"

BEGS . TO . CALL . YOUR . ATTENTION . TO . HIS
PARLORS . AT

49 Cortlandt St., New York,

WHERE YOU MAY HAVE THE ENCASEMENT
OF YOUR

PEDAL EXTREMITIES

Illuminated or Lubricated, for the infinitesimal
sum of FIVE CENTS, in a truly
scientific manner.

*The place is lighted throughout by incandescent
.. lights ..*

The boys are polite, and work with electric rapidity.
Your valise, bag, cane, or umbrella checked at all hours.

— TRY ME —

His establishment in the Cortlandt street cellar is one of the most

novel business rooms in the city. A little further on I received the hand-bill of the Irrepressible Dentist :

— DENTISTRY —

DR. W. F. NOSLOP,

DENTIST,

No. 9999 Fifteenth Ave., NEW YORK,

FOR nearly twenty years with Dr. Dear, of this city, begs to announce that he has established himself at the above address, with every facility for doing a **first-class dental business** in all its varied branches, at the following low prices :

Teeth Extracting, . . 25 cts. ; with gas, 50 cts.
 Gold Filling, \$1.00 upwards, according to labor.

Best artificial sets at cheapest rates. Only the best material used. Satisfaction guaranteed. Fresh laughing gas daily. Open from 7 A. M. to 8 P. M. ; Sundays, all day. Call and get my prices, before going elsewhere.

All over the city hand-bills and signs of a similar import may be seen. Is it any wonder that the dentist dies poor, and that the patients regard him as a very common sort of person ?

Unfortunately, the evil does not die with the dentist. Good men must forsake their calling and seek honor and fame in some other direction. When the dentist himself calls his profession a business, and the boot-black calls his business a profession, which of the two is going up in the scale, and which of the two is likely to have a monument and a decent burial ?

D. D. S.

IMPRESSIONS AND IMPRESSION-TAKING.*

BY MR. E. BULL.

Mr. President, and Gentlemen :

It is with great diffidence that I bring before your notice to-night the subject of impressions, recognizing, as I do, the supreme importance it bears to our profession as dental students. The value of an impression will be more fully brought home to us when we remember the fact, that no model can be an improvement on the impression ; and too often the model and plate show the retrograde steps, which, should the impression remain untrue, will undoubtedly cause the denture to prove a failure.

* Read before the Students' Society, London Dental Hospital.

I hope I may be able to introduce matter which some of you may consider controversial, and thus give rise to a good discussion, in which the many shortcomings of my paper may be, at least to some extent, compensated.

My intention is to deal, firstly, with the various materials used; secondly, to briefly describe the principal methods employed in the operation of impression-taking; and, thirdly, to discuss the question of selection of material.

Firstly, with regard to the materials.

Time was, when no impression materials were used, or impressions taken, but the unfortunate patient was made to sit in a chair for days together with a well-painted mouth, whilst a block of ivory was slowly let down on the spot. We opine a good fit resulted, since no better model could be had than the mouth itself, but we regard it as questionable whether the patient or the dentist had the worst of the bargain.

A Frenchman then discovered the excellence of wax as an impression material, and for many years this substance was exclusively used by dentists. From then up to the present time, various materials have been tried with varying success, but only four are now in common use, these being wax, modeling composition, gutta-percha, and plaster-of-Paris.

For a substance to be of any value in impression-taking, there are certain intrinsic and extrinsic properties that it must possess.

These are—

The necessary softness for taking the impression (*i. e.*, it must be soft enough to copy the finest lines of the mucous membrane, but must also have that consistency which will compress the soft tissues without displacing them.)

Must possess the proper hardness for retaining its shape when removed from the mouth.

Must take a sharp imprint.

Must remain where placed (*i. e.*, have no tendency to warp or fall away.)

Must harden promptly.

With undercuts must bend or break with moderate force.

Must be available under conditions existing in the oral cavity.

Must possess no qualities repulsive to patients.

The nearer a material attains perfection in these various properties, the better adapted it will be for our use.

WAX.—The wax used by dentists is common beeswax, which forms the framework of the comb. Virgin wax should be used, and its purity is an essential condition, care being taken that it is unadulterated with tallow.

There are two varieties of wax, yellow and white, of which the former is preferable, since the process of bleaching yellow to obtain white appears to destroy many of its good qualities.

Wax is prepared for the mouth by heating it in water hot enough to thoroughly soften without melting it. It may also be softened with dry heat, but this method is not so good as the former, since wax readily melts over the flame of a spirit lamp.

MODELING COMPOSITION.—This is the latest and in some respects one of the best materials for taking many sorts of impressions. It is composed of gum damar, stearine, French chalk, with carmine to color it, and a perfume to render it pleasant to the patient. The composition varies in its consistence according to the amount of stearine and chalk introduced into it.

Modeling compound is best softened by dry heat over a spirit lamp, as water appears to injure its consistency. The impression tray should also be heated, and the composition, rolled into a ball, applied to the palatal portion, and kneaded from thence to the rim. By this means a good surface free from creases is obtained, and this may be again surface-heated over the lamp before application to the mouth.

GUTTA-PERCHA.—Gutta-percha is prepared from the juice of the *ison-andra gutta* tree. It should be used in a pure state, as foreign substances tend to diminish its plasticity. Water heated to about 180° Fahrenheit should be used to soften gutta-percha. It must be worked with moist fingers, and before introduction into the mouth, its surface should be chilled in cold water; this is important, since should this precaution not be observed, the patient will be put to some considerable amount of pain owing to the contact of the hot material with the mucous membrane.

PLASTER-OF-PARIS.—Plaster-of-Paris is manufactured from gypsum, which is ground and calcined to drive off water. It should be perfectly dry, and there is one essential condition that must be complied with in order to obtain the best results—it must be properly mixed.

The setting of plaster is a chemical process, two molecules of water being taken up to one of plaster. The nearer this proportion is arrived at, the more satisfactory will be the result. It should be mixed in a small bowl, the plaster being sprinkled in until it is entirely taken up by the water, and the mixture is of a medium thickness; it should then be used immediately.

Since pure plaster requires some time to set, it is found advantageous to introduce something to hasten the process. Of the many agents used, potash-alum, ten grains to a tablespoonful of plaster, is by far the best. Common salt is also strongly recommended, and its presence is by no means unpalatable to the patient.

It is also very useful to mix some coloring matter, such as rose pink, with the modeling plaster, so that we may the more readily distinguish our plaster impression from the true model when chipping it off during the operation of casting.

We must give a passing word to the various sorts of impression trays that are in general use. Years ago, trays were commonly made of silver, but now-a-days they get so battered about to meet the requirements of each particular case, that it is unadvisable to employ any valuable metal in their manufacture. Britannia metal (tin alloyed with lead and bismuth) makes good trays, and is probably as useful as any other material. A complete set should be kept, the operator selecting those that best suit his particular method of treatment.

Practitioners of fifty years ago found fifteen trays amply sufficient, and Mr. Harris speaks with apparent complacency of having in one instance been absolutely obliged to make a special tray in order to obtain a correct impression. But the exigencies of prosthetic dentistry, as practiced to-day, have altered this pleasant state of affairs. It is now necessary in most cases where we are using plaster to take the impression, and in many a case beside, to make a special tray. I have no time now to go into the details of their manufacture, but I may say they may be made by such methods as striking up a piece of Britannia metal, or pouring tin.

So much for the materials employed. We will now go on, *secondly*, to the operation of impression-taking. We will first confine ourselves to general methods, and then particularize a few of the difficulties we meet with, and the means by which such difficulties may most readily be overcome.

The preparation of the mouth scarcely comes under the province of this paper, but I may mention, *en passant*, that all irritants, such as salivary calculus, roots and diseased teeth that will not yield to treatment, must be removed, and the gums and mucous membrane brought into a healthy condition, before a denture should be made, or an impression taken.

METHOD OF USING WAX, COMPOSITION, OR GUTTA-PERCHA.—We may take these three materials together, as there is little essential difference in the *modus operandi*.

Before taking the impression, the mouth should be dried with a soft napkin, and should the secretions be copious or the gum spongy, it is advisable in some cases to make use of an astringent, such as dilute phenol sodique, for some days prior to the operation.

The position of the operator should be behind and to the right of the chair, and he should be so placed that he can command a full view of the interior of the patient's mouth. The tray and material may best be introduced into the mouth by distending the left side of the lips with a finger of the left hand, pressing the tray against the right side, and passing it in with a rotative movement. The cup should then be carefully adjusted over the arch without disturbing the material, and then pressed up until all the parts are imbedded. The patient may then be instructed to draw down

the upper lips, and external pressure on the projecting material must be applied all round the alveolar ridge with the finger, an operation especially important with undercuts. With a good impression, the atmospheric pressure will be great, and difficulty will be experienced in removing the tray, this being best effected by elevating and depressing it with quick firm movements, thus causing the introduction of air between the palate and impression.

The material should be fairly hard before removal is attempted, and the setting may be hastened by the application of ice-cold water on a napkin. Owing to the smallness of the mouth, or the strength of the orbicularis oris, it will often be found difficult to introduce the tray. This difficulty must be overcome with gentleness, the use of force only tending to make matters worse. With irritability of the fauces and adjacent parts, causing retching and uneasiness, we should gently paint these regions with a camel's hair brush, with camphor water, or employ a gargle of the same.

METHODS OF USING PLASTER.—In the use of plaster, the patient should be placed upright in the chair, with his head inclined slightly forwards; the breathing may safely be left to itself, but he should be directed not to swallow during the operation. The drying of the mucous membrane is especially important before taking a plaster impression. The cup having been introduced into the mouth, should be pressed up with the rear slightly in advance of the front, in order to prevent any plaster escaping at the heel and causing irritation of the fauces, or dropping down the throat.

It is especially important that the back edge of the tray should fit the palate when plaster is used for the impression. If it does not, a bridge of soft wax should be built across it, conforming in shape to the palate.

It usually takes from three to four minutes for the plaster to set, and no attempt at removal should be made until a clean fracture results on breaking a portion of the surplus in the bowl. The tray may then be withdrawn as in wax impressions. Fracture of the plaster will usually result, and the pieces must be carefully collected and fitted on to the tray.

Instead of making a special tray for the use of plaster, another method may be adopted. A rough impression in wax is taken, and a layer varying in thickness from $\frac{1}{4}$ to $\frac{3}{8}$ of an inch, tapering towards the rear to prevent a surplus of plaster in that region, is trimmed from this. The wax should then be deeply scored and undercut, a thin surface of plaster run on, and another impression taken.

We will now describe a few of the more difficult cases to be met with in impression-taking.

The most common of these is a dovetail space between two teeth. Two or three excellent methods of operating are open to us.

The offending teeth may be dried, and a small piece of wax fitted on to the undercut portion; this must be well vaselined before taking the impression, or if plaster is being used, wax cut-offs may be employed, causing a fracture of the plaster down the middle of the dovetail.

If the case be such that a complicated fracture is unavoidable, a good plan is to fill such spaces with plaster, which when set must be trimmed so that no undercut exists, and it should then be coated with gum sandarac. Having taken the impression, the portion in the dovetail may easily be removed by slitting it transversely almost to the gum, when it may be fractured without being defaced, and fitted into the impression.

Another common difficulty is a deep undercut. Wax and composition are of little use, although gutta-percha may meet the requirements of the case, but undoubtedly, particularly if the mouth is edentulous, plaster is the material to use, and it is in these cases that wax cut-offs are extremely serviceable. Strips of wax are placed in the tray, forming a ridge corresponding to the alveolar process of the jaw; two transverse strips may also be placed at points corresponding to the position of the canines. The cup, being oiled, parts from the plaster, which is allowed to remain in the mouth. This, when set, is broken off by the operator, the cut-offs anticipating the fractures, and allowing him to remove the whole impression in four or five large portions. The palatal portion may be removed with a special hooked instrument.

There is an excellent method of procedure in taking plaster impressions where only one or two teeth are standing, in which the use of cut-offs is avoided. Strike up the tray so that it touches the crowns of the standing teeth, proceed as above, and the pieces of plaster will fracture across the weak spots above the teeth.

A difficulty often presents itself in mouths where there is protrusion of the front teeth. An ingenious tray has been invented by Mr. David Hepburn, to meet these cases, called after him, "Hepburn's Sliding Section Tray." It consists of an ordinary tray, with the rim in front cut away, this portion being made to slide along the handle, so that when pushed up it comes into its normal position. The method of operating is to take an impression in composition with the body of the tray, not allowing the material to overlap the protruding teeth; a piece of composition is then placed on the sliding rim, which is pushed home. The two portions may be readily removed, separately, without dragging.

I may also briefly mention here. Kingsley's method of taking impressions for artificial palates.

When the palate is merely perforated from accidental causes, no special apparatus is required, as only the boundaries of the foramen need to be defined. Great care must be taken, however, in these cases, not to use too much impression material, since the surplus may be pushed up into

the nasal cavity, in which case great difficulty will be experienced in removing the tray.

But with congenital clefts, it is essential that the entire borders of the fissure from the apex to the uvula, also the form of the cavity above the palate, should be perfectly represented in the model.

An impression of the lingual surface must first be taken, plaster being used with the greatest success. The next step is to take an impression of the nasal surface of the hard palate. This can be done by filling the lower portion of the cavity above the roof of the mouth with soft plaster, and while it is yet quite soft, carrying the palatal impression against it, having first soaped its surface to prevent adhesion between the two. The two portions may be easily removed separately, the nasal part being carried backward and withdrawn from the mouth with a suitable pair of forceps. The irregular surface of contact indicates their relations when the two are brought together.

Let us, *thirdly*, discuss the relative merits of the various materials used in impressions.

It appears to me in impression-taking, as in all other branches of our profession, we are too apt to settle down into a routine, and from either laziness or want of enterprise, we jog along in a circumscribed area, enunciating and practicing our own views, and thus losing sight of or entirely disregarding the many advantages which may attend another style of operation.

Gentlemen, I can only bid you beware of conservative methods; it behooves us to move with the times, and to make ourselves masters of new theories and new practices, although undoubtedly we should assure ourselves of their advisability and efficacy before bringing them into general use.

I do not hold with the modern craze for plaster impressions. I am quite aware that we shall be told in the ensuing discussion that men taking wax and composition impressions cannot even compete with those who use plaster. Well, all I can say is, that wax and composition have competed and do compete at the present day with plaster, and what is more, with the greatest success. Do not misunderstand me; I would not eschew the use of plaster for impressions. On the other hand, I think nothing else can be used in some mouths, such as edentulous jaws with deep undercuts, and cleft palate cases.

It speaks well for wax, that for so many years it was the only impression material used, and although times have changed, yet the callow student of to-day, who uses plaster indiscriminately for everything, would be perhaps surprised at the sharp impression that can be got by a practitioner skilled in the use of wax and composition.

It is the abuse, rather than the use, of wax that has brought it into apparent disrepute with some.

Gutta-percha is extremely serviceable, but it appears to want a great deal of practice for anyone to become proficient in its use. The great virtue of this material lies in its elasticity and power of regaining its original shape, which allow of its employment in undercuts, where wax or composition would be practically useless. Gutta-percha shrinks very considerably in cooling, and hence is used by some in taking impressions for regulation plates, thus securing a tight fit.

In selecting our material, there are two conditions to be borne in mind: a minimum of inconvenience to our patient, and a maximum of convenience to ourselves. For whatever we do, we must remember that a patient seldom feels at home in the operating chair, and anything which will tend to increase his discomfort must be avoided, as far as is compatible with good practice. In this fact lies one of my great objections to plaster as an impression material, for let men say what they will, plaster is very obnoxious to the patient, even with the greatest care. I advisedly leave incompetency out of the question, but probably in nothing is bad operating more painfully apparent, or more discomforting to the patient, than in taking a plaster impression.

Again, our own convenience is to be considered. With the plastic materials we have very little trouble, but with the plaster impression, the necessary preparation, together with the striking up of a special tray, and the subsequent fitting together of the fragments, are sources of great loss of time, and I fear too often of temper as well.

To sum up these remarks, as a general rule I recommend the use of wax, composition, or gutta-percha, since they are the most comfortable to the patient, and the most expeditious for ourselves, resorting only to plaster when these materials can not be used with any hope of success.

In conclusion, I have to thank you for your kind attention, in listening to my attempt to discuss a subject which after all is more practical than theoretical.—*The British Journal of Dental Science.*

GOLD AND TIN IN SAVING TEETH.*

BY C. R. BUTLER, D. D. S., M. D., CLEVELAND, O.

An old and interesting theme, yet ever new. First, because it has value; and then it must be ever new to the army of recruits that is added to the profession annually. And how shall they be able to take up improved modes and means of practice, unless these things are set plainly before them, as having passed the ordeal of time test, which is the prover of the faithful as well as the unfaithful efforts?

*Read before the Northern Ohio Dental Society, at Canton, O., May, 1890.

This subject—the combination of the two metals, in the same fillings—has claimed considerable attention, more especially the past few years.

The chemico-galvano electric feature of the presence of the metals in the teeth, the writer will not attempt to discuss at this time, that feature of the subject having been brought before the profession by teachers of dental chemistry.

But we will take it up from a practical standpoint, and advantages observed after years of testing.

If some sixteen pages of argument in one of the leading journals can be given to prove the great value of gutta-percha as an adjunct in dentistry, the writer will venture a few suggestions on the use of tin as a permanent filling in teeth.

How shall this be accomplished, for it is said that it wears out, no matter how well it is put in? Let us see whether this be true :

We will take, for example, proximal cavities in molars, or bicuspid, decay up to or under the free margin of the gum. The dam being adjusted, the preparation of cavity should be made with as much care as for gold, with angles as square as practicable, with slightest possible bevel of side margins of cavity, whether it be a deep or shallow cavity, so there shall be no feather-edge lap of metal on border of cavity when the filling is finished. Presupposing that working room has been secured, if possible would place a wedge between the teeth by the gum to hold them steady, then slipping a piece of steel down by lower margin of cavity, (the writer prefers an adjustable, rather than the closed band matrix). We are now ready to commence the impactment of the filling, whether foil or fibrous tin be used in mat, strip, or pellet, by the operator, the all-important item being to have the metal packed into a solid mass ; if this be done, close impingement upon the wall and border of the cavity will be secured.

It may not be out of place to mention the kind of instruments and force employed by the writer ; the ordinary foot shape serrated points, (sample instruments shown), with hand force in most cases ; the hand mallet is also a good adjunct.

Having filled one-fourth or half the bulk of the cavity with tin, cut shallow retaining pits and grooves in the strong part of the tooth, and finish out the filling with non-cohesive or cohesive gold ; it is not at all safe to depend upon the gold being driven into the tin alone for anchorage, to stand the force of mastication. But if the plan suggested be faithfully carried out, good safe contour fillings can be made.

One great cause of failure in the use of tin filling is, the operator does not start out with the idea that it is anything but an inferior material, and that fillings made with it are only temporary. But he who is fully imbued with the idea that the first and last object in filling teeth at all is to *save* them, and uses tin, *a la* Corydon Palmer, (who gave the writer instruction

and hints many years ago, of the possibilities of tin,) will find that his works do follow for many years, not to condemn, but to encourage to be more and more faithful.

To all young subjects that require operations, the above mode of treatment of most cavities, proximate and buccal, is to be commended, for it is conceded by the best of operators that children's teeth are better saved with tin than with gold.

Tin has a fiber as well as gold, and should be cut with the fiber. No. 10 foil I prefer, taking a sheet in the hands with a to and fro movement, crimping it both ways, giving it a working property when cut into strips lengthwise of fiber, and rolled into soft cylinders of the size and length desired.

Do not think of applying to some manufacturer for made-up tin, but learn to prepare it for the case in hand. There is too much dependence on these "made-up" articles; they are often a misfit.

Some may decry this system of filling because it may be abused by the man who puts in more tin than gold, and represents to his patients that he is giving them gold operations. But that has the same degree of honesty that there is in representing that they are giving them first class gold fillings, that fail to give the comfort and service that should be had from plastics.

This mode of operating is neither cheap nor does it admit of an inferiority of skill in the technique. The plea that is made by a recent writer against contour and in favor of face fillings, that time and tax upon patient and operator are greatly lessened, has but little force in cases where a contour filling is demanded. And the man who attempts to fill all teeth in the same manner, or carry out some pet system, has failed to comprehend the factors that have so much to do in making operations upon the teeth at all necessary, and is scarcely worthy the name of dentist in this active age of careful observation.

If we are members of a "learned" profession, the laity have a right to expect better services than was obtainable by their ancestors. We often speak with pride of the wonderful advances made within the past half or quarter of a century in the art and science of dentistry, but the query often comes to me, are we doing as much to-day with all the boasted knowledge of the minute structural make-up of the teeth, and the almost endless fine adjuncts in the operative department to prevent and arrest decay of the teeth, as the men who had to depend so largely upon their individual effort for ways and means to meet the demands for dental work?

Whether it be a chemical or mechanical effect that the tin has upon the dentine, is still a mooted question. But we have observed that the higher the degree of vitality or predominance of animal matter in the tooth, the less it tolerates gold as a patch! So putting the tin where the major part

of the cavity is dentine, then finishing out the masticating surface where enamel is mostly the receiving surface of the gold, the teeth are better preserved than when all gold was used! In many cases a mere line of tin is used along the basal margin. I have never been in favor of folding or rolling tin and gold together, but use them in definite sections.

The mode and results as given here are from actual practice. After years of testing, whether it be considered orthodox to declare such a line of practice, matters but little. My aim has been and is to make operations that save. One more example and I close this article. In cases where decay has made considerable inroads upon the proximate surfaces of the incisors, the structure of tooth is such that I should regard it the best kind of practice to open the cavities from the lingual surface. Secure as good borders as possible, fill with tin with a lining of non-cohesive gold under the face or labial wall, to modify the blue appearance that the tin might give the teeth. The matrix may be used to advantage in most of these cases, giving nature a chance under such fillings to harden the teeth.

No claim or care for priority is sought to be developed in this mode of using metals, as here presented. All operations, in fact, are but temporary.

But after years of careful observation of the mode and means employed to reach this class of cavities by men of skill and integrity, with the results following, I do not hesitate to put myself on record in support of this mode of making permanent fillings with tin and gold.—*The Ohio Journal of Dental Science.*

EPULIS—WITH REPORT OF A CASE.*

BY W. B. ROGERS, M. D.,

Professor Principles and Practice of Surgery and Clinical Surgery, Memphis Hospital Medical College.

The term epulis signifies a growth or excrescence upon the gum. Any growth, then, coming from or resting upon the gum, would come literally within the scope of this term. Fortunately, however, there are but few affections of the gum liable to be confounded with that particular class of tumors to which the consensus of surgical authority has restricted the term epulis—a solid tumor springing, not from the gum, but from below the gum, from the alveolar, and usually from the periosteal lining of the socket of a tooth.

In a detailed description of the diseases of the superior maxilla, Gross omits mention of epulis, though he describes it at length in affections of the lower jaw. I am firmly impressed with the idea of having seen in

* Read before the Tennessee State Medical Society, April 8, 1890.

some surgical work a statement that the lower jaw is exempt from the disease. Again, it is estimated that two cases occur in the superior to one in inferior maxilla. It has, however, been my fortune to meet with, in both superior and inferior maxillæ, well-marked epulis.

Epulis is a solid tumor, varying in size from a pea to a hen's egg, firm and fibrous to the touch—usually appears between two of the teeth, which are gradually raised and separated from each other by the red, smooth, glistening growth. The tumor is more or less constricted at its junction with the gum, in some instances, and, again, has a broad base; it expands, grows laterally as well as grows from the gum. It is painless to manipulation, but soon interferes with mastication, and while the surface is unirritated, the mucous membrane has the appearance of health, though if frequently impinged on by the teeth of the opposing maxilla it becomes abraded and even ulcerates and bleeds. The tumor expanding at its base separates the wall of the tooth socket, destroys the alveolar by absorption, and even burrows down into and expands the bone on which the alveolar is situated, to a shell. The teeth are displaced and loosened. But it is astonishing the minimum degree of pain experienced during the destruction in some cases of a considerable amount of osseous tissue.

Early adult age seems most prolific in the type of tumors to which epulis belongs, but of the few cases that have come under my observation the ages ranged from 20 to 52 years—the oldest subject being the only one which has thus far succumbed to the disease, and he, though seen shortly after the appearance of the tumor, declined any operative interference.

Diagnosis.—There should be little if any difficulty in determining between the epulis and other affections of the gum. It is as distinct from hypertrophy of the gum as is any other tumor from hypertrophy, elsewhere located. The noncystic nature can readily be determined by the exploring hypodermic syringe needle. A polyp sometimes occurs on the mucous membrane, but it will have no deeper attachment, while the epulis is a fibrous type of tumor connected with the periosteal covering of the bone. Vascular and warty growths need not be considered in a differential diagnosis. Seen in its infancy, epulis is distinct, and even when far advanced and ulcerating does not resemble epithelial cancer.

Cause.—As far as my researches go in the literature on this subject, there seems a uniformity of belief that this growth is due to the irritation caused by diseased teeth. Salter even alleges that in cases where the tumor appears on an edentulous gum, it will be found that, though the teeth have been extracted, there has been left behind a carious root.

It may not be uninteresting to note the difference in opinion as to the clinical import and consequently the difference in operative treatment advised. Salter, in his article in "Holmes' System of Surgery," and

with whom Holmes' recent edition of "Principles and Practice of Surgery" agrees *in toto*, broadly asserts that epulis is non-malignant from beginning to end; claims that in young, newly-formed epulis it is only necessary to remove the offending tooth—the one next, or may be one on either side of the growth, and then with the knife excise the epulis, and a cure results. He emphasizes the point that the epulis is dependent on the existence of the alveolar, and the removal of the teeth is followed by atrophy of the alveolar which is as effective as when removed by the surgeon. In the cases of longer standing, where the growth has spread along the alveolar evenly down to the bone proper, then excision of a segment of the alveolar and, may be, bone, on which alveolar rests, effects a cure. This teaching does not agree with one of my cases, of a small epulis, in which I removed two teeth, together with a segment of alveolar well down to the body of the bone, only to see the growth return at the same site within a year.

Opposed to Salter and Holmes, we find Gross, Erichsen, Billroth, Cornil and Ranvier, Hamilton, and the mass of writers teaching that epulis is a recurring tumor, tending to destroy life. They strenuously urge the necessity for thoroughly dealing with the site of origin of the growth—excision of the alveolar together with the epulis, going well into uninvaded tissues, even at the sacrifice of the body of the bone whenever indicated.

Strange to say, those writers who dwell on the non-malignant tendency of epulis, all consent to the same histological characters as are claimed for it by those of opposing creed. And it seems to be definitely settled that epulis belongs to the sarcomatis group. Sarcomata as a whole have a strong tendency to recurrence on removal. Every tumor containing embryonic elements is looked upon with suspicion.

The alveolar sarcoma stands second only to carcinoma in its tendency to destroy life, while the giant-celled or myeloid sarcoma is the least malignant of the group; to the latter class belongs epulis, which is composed of fibrous tissue and myeloid cells, the former predominating, and it would appear occasionally existing almost to the exclusion of the latter, and again, *vice versa*. The greater preponderance of myeloid cells, the greater the tendency to malignancy. Histologically considered, epulis is a recurring malignant tumor—a sarcoma. Clinically, early removal means a cure. When neglected, the tendency is to destroy life.

I beg leave to mention one case which came under my notice.

Case I.—Clara P., female, black, 32 years of age, presented at my clinic March, 1882, with a tumor about the size of a large chestnut, springing from the alveolar of the left superior maxilla between the lateral incisor and canine, both of which teeth were loosened from their sockets and displaced laterally. The mucous membrane was smooth, tense and

healthy looking, and had never shown any tendency to bleed. The tumor was rather pediculated; of firm consistence, painless to manipulation, and as far as could be judged, found its origin below the mucous membrane.

The lateral incisor, although showing no signs of decay, had been the site of considerable pain twelve months previous to the appearance of the tumor, which dated about six months prior to the examination. The growth of the mass had not been rapid, but was quite in the way of closing the teeth. The diagnosis of epulis was made, and with bone pliers a section of the entire depth of the alveolar was removed, going wide of the seat of the pedicle or base of the tumor on each side. It was believed that healthy, uninvaded bone was cut through with the pliers. Hemorrhage was considerable, and the actual cautery used to check it.

The parts soon healed, but scarcely had twelve months passed when the growth reappeared at its former site. Though repeatedly urged to return, the patient delayed until July, 1887, when she presented herself for treatment. The growth had by this time every appearance of malignancy. Repeated hemorrhages, great pain, foul smelling, ulcerated more or less, cauliflower-like mass filled the left half of buccal cavity; no glandular involvement. It was explained to her the improbability of successful and complete removal of the mass, but she insisted so on even temporary relief that I yielded, and assisted by Drs. Krauss, DePass and Henning, I removed the superior maxilla, found the antrum filled up with the growth, which was very encephaloid in appearance. Sir Wm. Ferguson's operation was performed. The incision was closed with silk gut suture; the union was good, and when last heard from, one year after operation, parts had healed kindly, patient in good health, and had taken unto herself another husband.—*Memphis Journal*.




EFFECTS OF BAGPIPE PLAYING ON THE TEETH.*

At the Annual General Meeting of the Odonto-Chirurgical Society of Scotland, held March 21st, Mr. Macleod said: Recently one of the bandsmen of the Cameron Highlanders was having some teeth filled at the Dental Hospital. On overlooking the work being done, he observed a peculiarity in the teeth of the young man under treatment, and, on inquiry, found that the young man was a piper and that the peculiarity

*The alleged music produced by bagpipes has a peculiarly exasperating effect on the nerves of many worthy people. It seems, indeed, to be absolutely necessary for the hearer to be a native of "Auld Scotia," before it can be really enjoyed. It appears there is retribution for playing the pipes, as for other misdeeds, as instanced in the following account of the bad effects of this perverse habit upon tooth structure.—*G. B. S.*

noticed was caused by the mouth-piece of the pipe. Mr. Murray Thomson, the student under whose care the lad was, took two most excellent impressions, and he had now the pleasure of passing round the models obtained from these impressions, which would give a graphic idea of the peculiarity noted—viz., three crescentic-shaped apertures between the cutting edges of the six front teeth.

He had examined the teeth of various pipers since then, and all of them presented the same “wearing away” in a greater or lesser degree, varying with the density of the tooth structure and the time engaged in pipe-playing. He found on inquiry that, on the average, it took about four years to make a well marked impression, but that, once the enamel edge was worn through, the “wearing away” was more rapid. Every one was aware of the way in which the tobacco pipe wore the teeth of the smoker, but this was not to be wondered at, the baked pipeclay being a hardish and gritty substance; but that a horn mouth-piece should have such an appreciable effect was, he thought, a matter of curious interest. He might mention, however, that the mouth-pieces suffered more than the teeth—the average life of a horn mouth-piece being from twelve to eighteen months, that of a bone or ivory one (a substance seldom used) being about two years. The peculiarity noticed was a crescent-shaped aperture  on the cutting edge of the front teeth in three localities—viz., between the central incisors, and between the lateral and canine on both sides.

Dr. Smith thought the case referred to by Mr. Macleod was one which had never previously, so far as he knew, been noticed or described in any dental treatise or association. The different situations in which the wearing down of the teeth occurred, and which corresponded with the positions to which the mouth-piece was shifted while playing, showed that this was obviously the cause of the injury. The fact of a bone or horn mouth-piece producing this effect seemed more remarkable than the well-known similar consequences resulting from using a clay tobacco-pipe. But although the bone or horn was a much softer material, its action was possibly aided by the much harder bite capable of being sustained by it than could be borne by a clay pipe stem.

Mr. Leslie Fraser (Inverness) spoke of a case he came across in his practice. The patient was about twenty-five years of age, and had been playing the bagpipes for over seven years. The two central incisors were very much cut or worn towards the mesial line. They were also so very loose that he picked them out quite easily with a napkin between his forefinger and thumb. This patient always held the “chanter” between his two front teeth, and having rather a swinging gait, this probably caused a good deal of vibration between the mouth-piece and the teeth when he walked. The patient also suffered from Rigg’s disease, more

particularly in connection with the teeth in question. A plate of black rubber was inserted, and he finds he is able to grasp the mouth-piece quite as well now as formerly. How long these porcelain teeth will survive the strain is quite another question.—*British Journal of Dental Science.*



SHORT-SIGHTED INVENTORS.

A few months ago an inventor of certain apparatus of a very simple character, which could have been readily duplicated in many different forms, was offered \$6,000 for the right to a certain inland town. He was a poor man and needed the money badly. The reader supposes, of course, that the inventor jumped at the chance and pocketed the money on the spot. Not he; he told the buyer that the patent was worth \$100,000, and he was not going to sell one town in New York State for \$6,000. The same inventor was offered a similar sum for another large town in the State, or \$10,000 for only two cities in the country, but he refused to take it. We have these facts from the inventor himself, and they are correct. Before it was too late to negotiate, we berated the man soundly for his folly, but he was deaf to all argument. The sequel was that the inventor never sold a single right, and has his patent to this day.

The fatuity of inventors on this one point, the value of their patents, is wholly incomprehensible from a business point of view. If a farmer was offered \$10,000 for ten bushels of potatoes, and refused it upon the ground that the bushels would produce tons of potatoes, he would be no more inconsistent than the inventor who refuses a good round sum of money for an unmarketed invention. Yet this is what they do every day in the year. There are men walking the streets in poverty who have devices of more or less value, which, in the hands of business men, would have commercial value, that they refuse to part with because they are not paid high enough in their own estimation.

Let inventors remember, for their own good, that an undeveloped, unmarketed invention is of no more value than the paper the patent is written on. It has possibilities, no doubt, but these last are intangible, and before they can be converted into dollars and cents another head must be called in, and as his risks are greater than the inventor's, he must have an adequate reward. Every patent of any prospective value, even, has to be litigated sooner or later, and this costs money; its value is not established until the absolute priority of the patent is settled. If inventors would only bear these facts in mind, and sell their inventions as soon as possible, there would be fewer disappointed patentees.—*The Engineer.*

DOCTORS AND DENTISTS WITH AMERICAN DIPLOMAS.

According to Dalziel's Berlin agency, (says the *Pall Mall Gazette*), by direction of the Privy Council, a census is being secretly taken of the number of doctors possessing American college degrees practicing medicine and dentistry in the empire. It is the intention of the government to interdict the carrying of an American doctor's degree, a title assumed here principally by dentists. In German colleges there is no such degree as "Doctor of Dentistry," consequently many German students matriculate at an American university, generally in Philadelphia, Baltimore, or New York. They graduate with the degree of D. D. S. (Doctor Dental Surgery), and returning to Germany place the prefix "Dr." on their door plates. This is no longer to be permitted, as it is regarded as misleading to patients; an American medical degree being considered as next to valueless in Germany. In Berlin at present there are twenty-six German dentists with American diplomas. Their licenses will be taken from them unless they call themselves plain "Mr." If one may judge from recent expressions of opinion from the leading London dentists and from the action of the Odontological Society, which systematically ignores the American degrees, we should say that there is as strong a feeling in London against the assumption by dentists of the title of Dr. as in Berlin.—*Dental Register*.

OUR POSITION AT THE CHAIR.

Our position at the chair is not of small moment. By the habits of some dentists, one would suppose the patient has no rights the dentist is bound to respect. He lolls and leans and crowds on his patient, making of him his cushion, his staff and his main support, till the patient feels crushed and smothered and exhausted. We have seen a dentist so rudely lean and press against his lady patients as to be repulsive and immodest. There may be no resistance in plain English to all this, *but it is remembered and reported*, much to the dentist's detriment.

Then, too, the dentist has rights he owes to himself. It will not do to indulge his patient in any position he may choose to assume. Many dentists toil to the great detriment of their work, their comfort, and their health, by allowing patients to loll about, double up, or turn about as fancy pleases them. We should insist on their assuming positions advantageous to us and our work. The mere position of the head is of great importance. Some chairs are made so wide that our

patients, unconsciously, get away from us, and we are obliged to lean half over them to get at our work, or have frequently to bring them back within proper reach.

But, independently of the position of our patients, there is much to be observed in our own habits of position. Standing on one leg for an hour at a time is, of course, injurious. Standing in a stooped position for a whole day is suicide. Twisting our body into a corkscrew to see our work is nonsense. Habitually leaning hard against the arm of the chair is sure to bring on internal complaints. Having our mouth so near the mouth of the patient as to breathe his breath and the rottenness in his mouth, is of course deleterious.

The dentist should stand erect, in an easy, self-possessed and self-supporting position, as much as possible. The more props and supports he has, the more he wants, the more awkward will be his position, and the more unhealthful. Spinal complaints, consumption, vertigo, and many other complaints would thus be avoided. His chair should be so easily raised and lowered, and turned to either side, and back and forward, that he can bring his patient in any position to suit his work. The head, especially, should be controllable, in aspect and position, without serious inconvenience to the patient.—*Extract from Editorial in Items of Interest.*

OUR CALLING.

Dentistry. What does the word imply? Our dictionaries tell us that "Dentistry is the art or profession of a dentist; one who makes it his business to clean, extract and repair natural teeth, also insert artificial ones."

This definition might well apply if students were taught that these four branches were all that was necessary to make them *finished* dentists. But, in looking over the duties and professional skill that is required of the dentist of to-day, we find that the definition covers but a small portion of the ground.

The dentist of to-day should be a person of great judgment and capability; his work should begin with the child's teeth at a very early age; he should be capable of judging if any deficiency exists in the teeth owing to a hereditary cause or otherwise; if the child's teeth need filling or to be kept thoroughly cleansed he should know it, and inform the parents or guardian of the fact; he should have a perfect knowledge of the time of eruption of the temporary and permanent teeth, that he may know just when to extract a temporary tooth to make room for a permanent one; he should know that scrupulous care and attention to the

temporary teeth by filling and preserving them until nature intends that they should go, is of the most vital importance. Then again the dentist should have a *perfect* knowledge of the anatomy of the maxillaries, knowing that several more teeth belong to the permanent set than existed in the temporary, as the temporary teeth are only twenty in number while the permanent are thirty-two. The dentist should know that the maxillaries must lengthen; therefore, if the temporary teeth are extracted too soon, more or less contraction takes place, and as a matter of fact the permanent ones are crowded and irregular.

In extracting teeth generally the *greatest* care and judgment are required. Patients frequently go to a dentist to have a "tooth drawn" without knowing which tooth it is that aches, and (in case the dentist has been taught to extract teeth merely because they ache) will often have one removed that is not the cause of the suffering at all; the pain may have been sympathetic, or the tooth might have been treated and saved.

In filling teeth to preserve them the dentist should not only have a perfect knowledge of all the material he uses, but he should be a judge whether or not the teeth are lacking in any of the necessary component parts, so that he may determine how to treat them and what material is best to use.

In the insertion of artificial teeth extreme nicety of judgment is often required to have them look as natural as possible, neither too white nor too dark, too long nor too short, but *just right* in all respects.

At the present time the dentist is required to follow all the requirements that are embraced in the profession, but the time may come, *especially* in the cities and larger towns, when dentistry may be divided into specialties, each branch requiring one who is thoroughly educated in the "Why's and How's" of his special calling. There are some dentists who seem to be gifted with the science of filling teeth with gold, making beautiful and durable fillings, while others may try all their lives and never make a success. Then again there are those who insert hundreds of sets of artificial teeth, but seldom place a set that looks natural.

It will probably be some time before dentistry will be separated into different branches; we must therefore be content to gain all the knowledge that is possible relating to all the calling requires. The time is coming, and not distant, when the dental profession will be looked upon by the masses as respectable and as scientific as the profession of medicine, if not more so. There are some of us who have been physicians as well as dentists that have had this remark made to us: "Oh, I thought you *nothing* but a *dentist*." I will venture this assertion, that according to the rapid strides that dentistry is making, not many years shall have passed away ere the remark may be made to an M. D., who may practice dentistry: "Oh, I thought you *nothing* but a *doctor*." I will here state,

however, that the more medical knowledge a dentist possesses the better for him. There are certain branches of medicine that an educated dentist ought to possess, and these will of course suggest themselves to him through his preceptor and his professors at college.

The calling of dentistry, to succeed, must have the help of an educated people; they must be educated in the rules of health and the requirements necessary to preserve health. They should know that a sound set of teeth is one of the great preservatives, and worth more than *all the tonics in creation*. It is astonishing what ignorance exists among the masses in relation to their teeth: the majority of people do not know how many teeth constitute a deciduous or permanent set. The dentist should be ever ready to instruct such people when they will receive it kindly.

Dentists are not exempt from joys and sorrows. How many of us have sat down to rest, after a day of disappointments and trials, concluding that some other business, wherein all this trouble did not exist, would have been better for us. To illustrate, you go to your office some bright morning, feeling that you are going to have a good day for business,—

Patient No. 1 meets you at the door with a scowl and the greeting, “Well, doctor, two of those fillings you put in for me came out the next day, and I want you to do your work over again.” You seat the patient, refer to your register, and find that *your fillings are all right*, but that two teeth on the opposite side of the mouth, corresponding with the ones you have filled, have cavities in them; in the mean time your friend may have told a *dozen friends* that your work was a failure.

Patient No. 2 calls. “Doctor, that plate you made for me don’t stay in its place at all; when I bite on it in front, it tips up; the plate you made for my neighbor never gave him *any* trouble and he can eat anything on it.” (The fact is that his neighbor has a good mouth to fit while his is a very difficult one). You, however, file and scrape his plate and tell him *to call again*.

No. 3, a lady, comes in and says: “Do you remember extracting a tooth for me about six years ago? Well, you didn’t get it all out; I want you to finish your job and not charge me for it, either.” Nos. 4 and 5 come in to see about having each an upper set of teeth; you tell them your prices, they tell you they can get them elsewhere “for five dollars a set and *full* satisfaction guaranteed;” you will most likely advise them to go to that place at once.

The whole day passes away, and you may have gone without your dinner, not receiving one cent for your day’s work. The patience of Job and the courage of Napoleon are required to go through such days and preserve your equilibrium, but luckily such days are few; they are more than balanced by the many when you have all you can do, each operation paid for without a dissenting word. * * *

The dentist should keep posted in dental literature and attend as many dental societies as possible, especially his State society, which meets once each year.

Not only should he attend, but try to present some new idea, or, if he can, some peculiar shaped casts of the mouth or teeth, etc.; and although the ideas or peculiarities may not be new to all, yet there are many present who may profit by it.

A great deal has been said lately about women becoming dentists; if she so desires, and possesses the necessary requirements, I see no reason why she cannot succeed in this profession.

Before closing this paper permit me to say that a great responsibility rests upon you.

It is by the teachings, discussions and business transactions of *this* society that dentists of the State are more or less governed.

Therefore, *every member* should try to promote the interests of the profession, intellectually, socially and morally, as well as financially.—*The Western Dental Journal*.

UPWARDS of one million American whitefish have been propagated from ova by Mr. John Burgess at the Midland Counties Fish Culture Establishment, Malvern Wells; the ova having been sent by the United States Fish Commissioners with the object of assisting Mr. Burgess in his efforts to establish this valuable food fish. The ova were hatched out with a very low mortality, and the young fish are doing well. The land-locked salmon of America is also being acclimatized by Mr. Burgess with successful results, together with the rainbow trout of California. The art of pisciculture is now so developed that it ranks almost with horticulture as a matter of certainty, and there is no reason why ponds and rivers should not be stocked with fish which may be reared with at least as much success as crops are raised in the kitchen-garden.—*Exchange*.

EVERY ONE knows the “facial contortions” following the introduction of a carbolic dressing into a sensitive tooth, even though he himself may never have experienced the actual pain. It is often looked upon as a kind of struggle of the Dentinal Fibril before the escharotic gives it its *coup de grace*. Acting on this view, some men mix up with their carbolic a little cocaine. But in nine cases out of ten, it’s nothing of the kind, simply and solely because the dressing’s cold. Wet the pledget of wool thoroughly, then warm it in the flame of a spirit lamp, and introduce warm. This is the best anodyne.—*British Journal of Dental Science*.

DR. H. C. MERRIAM, in a recent letter to Dr. C. N. Pierce, published in the *Items of Interest*, makes the following remarkable statement :

“Regarding editors, they have no right to speak for me or the profession, for I do not know whether they speak as traders or editors; but do know that everything they touch, they trim, so that the credit of production is taken from the profession and given to themselves.”

If Dr. M.'s productions stand no higher than his evident regard for the truth, they are as worthless as the credit he wishes to establish for certain files which are simply reproductions of old patterns that have been in use among dentists for years.

This is not the first slur that this gentleman has cast at the dental editors of the United States, and we for one do not intend to pass it by without comment. We doubt not, if comparison were fairly made, the average dental editor would be found to possess as much reputation for integrity, veracity and honesty of purpose as he who, possibly for lack of ability in any other direction, has for years been posing before the dental profession as a champion of dental ethics, while violating, almost with every breath, its foundation principals by the vituperation of his neighbors. We have watched this doughty gentleman's emanations for some time, but if there was ever among them anything that would tempt the most *ordinary* editor to either trim or purloin, it has escaped our notice. Since when, we would like to ask him, has it come to pass that editors have no right to speak for the profession they represent? Can the gentleman who makes this onslaught upon them show a record of personal sacrifice in the interest of the dental profession that will begin to compare with that of the humblest and most obscure editor in the land? We doubt it.—*The Western Dental Journal*.

HABITUAL USE—OR RATHER ABUSE—OF COFFEE is strongly disapproved of by F. Mendel (*Berlin Klin. Wochenschrift*, 1889, No. 40,) and he ascribes to its action a complex of diverse symptoms, of more or less serious nature. In contemplating them, we are strongly reminded of a similar attempt of a physician to dispel the favorable opinion which an aged lady entertained of this popular beverage. “Yes, dear doctor,” she replied, “I know it to be a very slow poison. I have partaken of it more than seventy years, and, as yet, it has not killed me.” Talleyrand was very fond of it. He took his coffee “black as the devil,” “hot as hell,” and “sweet as love.” He certainly did not suffer from cerebral neurasthenia. Perhaps Dr. Mendel had the substitute—chicory—in view when he wrote the quoted article. The mere thought of it gives me heartburn!—*St. Louis Clinique*.

DR. CUSTER, Dayton, Ohio, says too much value cannot be placed upon the power of personal magnetism in the dental operator. The exhibition of tender sympathy in a painful operation does much to mitigate its severity. Everything lies in obtaining absolute confidence of the patient. If the operator shows that he is perfectly familiar with the operation, that he knows exactly what to do, giving no evidence of bungling or embarrassment, no hesitation in the choice of instrument or remedy, there will be less dread and apprehension, the imagination will not be aroused, and, the subjective image not being formed, the actual will not be realized.

MIND AND CHARACTER are acted upon in proportion as they act from within. They are gainers just so far as they are givers. They receive in proportion to their outlay. In the realm of knowledge and of character, passive reception is no reception. Only as a learner becomes a teacher, does he really learn. Only as he who is within the range of influence begins to influence others, is he himself truly influenced. Reading or hearing brings no result to him who makes no use of that which comes to him in this way. It is by a man's arousing himself to tell of what he has heard or read, that a man makes the information thus available to him his permanent possession.—*Exchange*.

THE TWO SONS of an eastern merchant started for India. Some months afterward the father received this telegram: "Jim dead." In reply he cabled, "Ship corpse." In due time a large box arrived which was found to contain the body of an enormous Bengal tiger. The parent again cabled: "Mistake made; tiger in box." To which his surviving son replied, "All right. Jim inside tiger."—*Exchange*.

MR. BADCOCK, mindful that "Many a mickle makes a muckle," has grumbled at the gold dust lost on the "Rubber Dam." His time is too valuable to waste in collecting this, but he has now started a jar (and a very pretty one, too,) into which he stuffs his rubber. When full, it is sent into the workroom, there washed, and the dust saved.—*British Journal of Dental Science*.

MENTHOL AS AN ANTISEPTIC.—The use of menthol as an antiseptic as well as an anodyne appears to be increasing, and from the fact that it is probably the least injurious of all known antiseptics, it is likely to come still more into use as such. It is especially useful in dental practice from its specific action in neuralgia.—*The British Journal of Dental Science*.

ALTHOUGH the operator says of light, "the more the better," not so the patient. To have to sit facing a bright light, especially an artificial one, during the insertion of a gold plug, is no slight task. We have all had patients complain, and have no doubt sympathized. But it seems (as far as we know) to have been reserved for Mr. Badcock to hit on the simple expedient of a pair of "blue goggles." He keeps a pair handy, which though certainly formidable to look at, are much appreciated by his patients. Try it.—*British Journal of Dental Science.*

DENTISTS' SOCIETIES.

MISSOURI STATE DENTAL ASSOCIATION—Pertle Springs, July 8, 1890.

GEORGIA STATE DENTAL SOCIETY—Gainesville, July 9, 1890.

MINNESOTA STATE DENTAL ASSOCIATION—Minneapolis, July 9, 1890.

SOUTHERN DENTAL ASSOCIATION—Atlanta, Ga., July 15, 1890.

NEW JERSEY STATE DENTAL SOCIETY—Asbury Park, July 16, 1890.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS—Excelsior Springs, Mo., August 4, 1890.

AMERICAN DENTAL ASSOCIATION—Excelsior Springs, (near Kansas City,) Missouri, August 5, 1890.

TENTH INTERNATIONAL MEDICAL CONGRESS—Berlin, Germany, August 4-9, 1890.

CHICAGO DENTAL SOCIETY.

At the annual meeting of the Chicago Dental Society, held on Tuesday, April 1, 1890, the following officers were elected for the ensuing year: President, C. N. Johnson; First Vice-President, C. H. Thayer; Second Vice-President, I. A. Freeman; Secretary, A. E. Baldwin; Corresponding Secretary, T. L. Gilmer; Treasurer, E. D. Swain; Librarian, A. W. Harlan; George H. Cushing to succeed himself on the Executive Committee; C. F. Hartt, E. A. Royce, and S. B. Palmer, Board of Censors.

T. L. GILMER,

Corresponding Secretary.

GEORGIA STATE DENTAL SOCIETY.

The twenty-second annual meeting of the Georgia State Dental Society will be held at Gainesville, Ga., July 9, 1890. All delegates to the Southern Dental Association to be held in Atlanta, Ga., July 15, 1890, are cordially invited to meet with us.

L. D. CARPENTER,

Corresponding Secretary.

MISSOURI STATE DENTAL ASSOCIATION.

Attention is called to the next meeting of the Missouri State Dental Association, which will be held at Pertle Springs, July 8, 9, 10, and 11, 1890. No effort will be spared to make this meeting one of the largest and most interesting in the history of the Association.

The American Dental Association will meet in Missouri next August, and it is especially desirable that we have a large attendance at our next meeting so that we may make proper arrangements to receive the members of the American Dental Association in a manner that will reflect credit upon the dentists of Missouri.

Now is the time to make your plans so that you may be able to be with us, and we earnestly solicit your presence.

Faternally yours,

J. F. McWILLIAMS,

W. L. REED,

W. H. BUCKLEY,

Executive Committee.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The next meeting of the National Association of Dental Examiners will be held at Excelsior Springs, Mo., Monday evening, August 4th, 1890, at eight o'clock, and at other times during the week, between the sessions of the American Dental Association. It is important to have every State Board represented.

FRED. A. LEVY, D. D. S.,

Secretary.

DIED.

At Ogdensburg, N. Y., April 10, 1890, Dr. John Austin, in the seventy-second year of his age.

At New Orleans, La., April 14, 1890, Dr. James West, in the sixty-ninth year of his age.

At Monticello, N. Y., April 18, 1890, Joseph C. Barnum, D. D. S., in the forty-third year of his age.

At Wilmington, Ohio, April 18, 1890, L. B. Welch, D. D. S., in the sixty-eighth year of his age.

At Atlantic City, N. J., April 24, 1890, William A. Clymer, D. D. S., in the thirty-third year of his age.

At Alton, Ills., May 20, 1890, Dr. Homer Judd, in the seventieth year of his age.

At Muscatine, Ohio, May 22, 1890, J. Hardman, D. D. S., in the sixty-fifth year of his age.

DR. HOMER JUDD.

Editor DENTAL ADVERTISER:—At a meeting of the St. Louis Dental Society, held on Tuesday, May 20, 1890, the following resolutions, on the death of Dr. Homer Judd, were adopted :

Whereas, The members of the St. Louis Dental Society have learned with great sorrow that death has removed from us our loved and honored associate, Dr. Homer Judd ; and

Whereas, By reason of his great natural abilities, ripe scholarship, zeal, industry and integrity, he was recognized by the dental profession as one of its most influential members, a man who devoted his life to the honor and advancement of his profession ; and

Whereas, During a long professional life, his relations with this Society have been such that it is our pleasure and duty to record our high appreciation of him ; therefore,

Resolved, That by the death of Dr. Homer Judd the dental profession has been deprived of one of its most able and useful members, one whose influence for good will live forever.

Resolved, That we extend to his family our sincere sympathy in their great bereavement.

Resolved, That a copy of these resolutions be sent to the family of the deceased, and to the dental journals for publication.

W. H. EAMES,
HENRY FISHER,
A. J. PROSSER,

Committee.

MRS. E. E. CHASE,

Corresponding Secretary.

DEATH FROM BROMIDE OF ETHYL.

A somewhat important case (says the *Lancet*) is now before the Berlin courts, in which a dentist is charged with having caused the death of a patient by means of an anæsthetic. The patient was a lady, and the dentist entrusted his pupil, whose age was under seventeen, with the administration of bromide of ethyl. Of this about an ounce was administered, together with four or five drops of chloroform. The patient is stated to have recovered completely from the effects of the anæsthetic, and to have felt quite well during the remainder of the day. The next day, however, she died, and a commission of medical experts has been directed to report upon the matter.

THE DENTAL ADVERTISER.

CONDUCTED BY THEO. G. LEWIS, D. D. S.

BUFFALO, N. Y., JULY, 1890.

ANOTHER BRIDGE PATENT.

It will be noticed in the list of patents, in this number of the DENTAL ADVERTISER, that Dr. George L. Curtis, of Syracuse, N. Y., has obtained a patent on a Dental Bridge.

Dr. Curtis has always been highly esteemed by his professional brethren, and we know that he has endeavored to hold his position heretofore by true professional conduct and skill. He is a fine operator and is especially skillful in oral surgery. Just why he should, at this time of his life, patent his invention and forfeit all "claims of professional brotherhood and society obligations," and be guilty of the "vulgar offence of parading one's virtues [patents] in the public prints," is beyond a sensible man's comprehension.

Perhaps he had not heard of the ponderous denunciator of Massachusetts and did not stand in fear of this great anti-patent ponderosity.

Perhaps he had visions of medals, monuments, gold watches, and elegantly engrossed resolutions tendered to him by an admiring and appreciative profession—many years after his death.

Perhaps he had a desire of gaining immediate wealth, and to that end would not hesitate to enslave his professional brethren, by disposing of the patent to the International Tooth Crown Co.

Perhaps he had too much honor to steal a bridge patent and lie about it to the owners thereof, and thought he would invent one of his own, and thus avoid a suit for a settlement of royalty fees.

We might continue to speculate as to Dr. Curtis's intentions in the matter, but no explanation will save him from professional ostracism. He has dug his own non-professional grave and no Dental Bridge will enable him to cross it safely. He is sure to tumble into the pro-patent gulf, but he will there have the genial companionship of real inventors, and escape the hooting, senseless crowd of copyists who imagine that they are inventors, and who boastingly give absolutely nothing, "freely and without compensation," to the terribly patent-oppressed fellows.

TENTH INTERNATIONAL MEDICAL CONGRESS.

The Tenth International Medical Congress will be held in the city of Berlin, Germany, beginning the 4th day of August, 1890, and will continue for one week.

In section XVI., Dental and Oral Surgery, there will be five general subjects of discussion, as follows:

1. Bromide of Ethyl Narcosis.
2. Pyorrhœa Alveolaris.
3. Micro-organisms in Caries.
4. Crown and Bridge Work.
5. Irregularities of Teeth.

These five subjects, with the clinics and demonstrations by men selected for that work, will make up the official program of the section.

Of these, one has been assigned to Germany, one to England, one to France and two to America.

Dr. W. C. Barrett, of Buffalo, N. Y., has been selected by the General Committee to present the subject of "Crown and Bridge Work," and E. S. Talbot, of Chicago, that of "Irregularities of Teeth."

Other papers read will be such as the General Committee shall select from the voluntary contributions, and as many as time will permit.

The American officers consist of four Honorary Presidents, as follows: W. C. Barrett, M. D., D. D. S., Buffalo, N. Y.; J. Taft, M. D., D. D. S., Cincinnati, O.; E. S. Talbot, M. D., D. D. S., Chicago, Ill.; H. J. McKellops, D. D. S., St. Louis, Mo.

R. R. Andrews, D. D. S., of Cambridge, Mass., has been appointed by this board, Honorary Secretary for America.

A large number of American dentists have already signified their intention to be present at the Congress. From Buffalo will go: Dr. W. C. Barrett, Dr. H. A. Birdsall and Dr. F. E. Howard.

EULYPTOL (not Eucalpytol) is a mixture of 6 parts salicylic acid, 1 part carbolic acid and 1 part oil eucalyptus; it is praised as a powerful antifermentative.

DR. B. H. CATCHING says that "*The Dental Register* presented us one of the greatest anomalies in its last issue. It was in the shape of W. Storer How, reading the dental profession a lecture on ethics. * * * You can't bring out another anomaly so great."

Oh, yes, Brother Catching, one equally as great is the periodical lecture and abuse the manufacturers of dental material receive, and the peddling of files and small wares by the eminent lecturer.

IT IS SAID that there is a fine opportunity for a few good, bright American dentists to locate in Madras and Bombay. Dr. Chester, a medical missionary, and a brother-in-law of Bishop Whittaker, of Philadelphia, says that Madras is a city of 300,000 population, and has not a single American dentist there. He knows people who travel from there to Bombay, nearly 1,000 miles, in order to have a tooth filled. There is only one good dentist in Bombay, and he refuses to fill teeth with gold, using a sort of cement that is not lasting. He charges \$7.50 for pulling a tooth. A few good American dentists could go over there now, and at once step into a big business.

DR. E. G. BETHY, of Cincinnati, Ohio, has an interesting article in the April number of *The Dental Review*, on the "Teeth of the Mound-builders," as exhibited in the skulls in the collection of the Army Medical Museum, at Washington, D. C. The article is a valuable contribution to scientific dental literature, and is well worth careful perusal.

THE DENTAL MIRROR.—This is the title of a new dental journal edited and published in the city of New York. The first (July) number was issued June 20th. The standing of this journal may be judged from the fact that it is conducted by Dr. A. Ottolengui, and we presume he receives the assistance of the able progenitors of the enterprise, who, we are informed, include the brightest professional talent in New York. The *Dental Mirror* is to be published monthly at 63 West Fifty-fifth street. Send for a sample copy.

DR. B. H. CATCHING, of Atlanta, Ga., is at work on a Compendium of Practical Dentistry, which will consist mainly of the valuable matter contained in the various dental journals for the year 1890. This compendium will be a ready-reference book—a sort of annual encyclopedia of practical dentistry, and it is proposed to issue a volume each year. The price is fixed at \$2.50, to be paid on delivery of book.

IN JUNE, 1889, about twenty-five dentists of Rio de Janiero, Brazil, organized a dentists' society, under the name of "The Institute of Surgeon Dentists of Rio de Janiero." Among the list of officers we notice the name of Dr. Carlos A. Hastings, an old friend and fellow-graduate from the Pennsylvania College of Dental Surgery, Session of 1861-62. Dr. Hastings would be pleased to receive dental literature of any description on behalf of the society. The assembly rooms are located at No. 62 Rua Sete de Setembro, where communications should be addressed.

ANY ONE INTERESTED in the sick-benefit, funeral-aid, and death-beneficiary associations of the United States can help make the statistics of their organizations for the forthcoming census more complete, and disseminate the knowledge of the good work they are doing, by sending the names of such societies as they may know of, and the addresses of their principal officers, to Mr. Charles A. Jenney, Special Agent of the Eleventh Census, 58 William street, New York City.

A CORRESPONDENT in the *English Mechanic* propounds the question, Is death universal? He writes: I ask this apparently paradoxical question because Wiesmann, in his essays on heredity, holds that monads are immortal. They may, of course, be killed; but with suitable conditions of moisture, temperature, etc., they will never die. The *Lancet* coincides, and says there is no reason why they should die. But Prof. Huxley, I think, somewhere in effect says that prior to experience animals might be expected to live forever, as they are not like lifeless machines, but endowed with the power of self repair. Will any of our microscopists kindly say what foundation there is for the immortality of monads—if it is simply theory? I was surprised to learn, on the authority of the late Mr. G. H. Lewes, that the natural life-period of rotifers is only about nineteen days; and yet, as is well known, they may be dried until nothing apparently remains but dust—kept for months in this state—the application of a little water at any time bringing about what appears a veritable resurrection. They may be frozen, too, and still survive. Monads can scarcely be more tenacious of life, under extremely adverse conditions, than these creatures.

DR. F. B. MERRILL, of Chicago, has been sued for breach of promise of marriage by a discharged office assistant. The breach can be closed by a \$25,000 patch. Dr. Merrill was recently married to the daughter of a millionaire, and it is presumed that his honeymoon is rather more than ordinarily exciting, in view of the suit and explanations that must follow. The defense is, that it is a blackmailing scheme.

THE POST-GRADUATE School of Prosthetic Dentistry and Dental Laboratory of Chicago, is now open the year around. Students may enter at any time. Dentists desiring instruction in crown, bridge, or continuous gum work are advised to "seek the seclusion" of the Chicago school for one month at least, which length of time is deemed sufficient to instruct them in the specialties taught by Prof. L. P. Haskell, and his able assistants.

CORRESPONDENCE.

“NE SUTOR ULTRA CREPIDAM.”—*Virgil.*

NEW YORK, June 12, 1890.

Editor DENTAL ADVERTISER:—It would appear from what transpired at the meeting of the First District Dental Society, that the Chairman of the Law Committee is having a hard time of it to raise money to enforce the dental law, as enacted. Thus far he has expended about fourteen hundred dollars from his own purse to further the prosecution and bring the violators of the law to justice, which sum has not been paid back. If the Society wants such a law as has been passed, they ought to furnish their Chairman with means by which he can enforce it. As the case stands now, he is the only zealous party, and when lawyers or prosecuting officers part with their own money it argues well for their sincerity, and more may be said for their zeal than for their discretion. It is a trite saying among lawyers, “Never make your client’s case your own, as clients generally prove ungrateful after the work is done; therefore, get your fee in advance.” It would seem as if there was always a chance to apply the maxim. The lawyer who appears in his own behalf to argue a case, generally has a fool for a client.

D.

FLAGG’S “PLASTICS AND PLASTIC FILLING.”

Editor DENTAL ADVERTISER:

DEAR SIR—The third edition of this book appears again with an extraordinary statement. On page 56, he publishes two assays of alloys, stated to be made by me, but which in no respect, and in no proportion of any metal, bear the slightest resemblance to any alloy ever made by me, nor would alloys, made according to the published assay, have any properties like any alloy I make. In one assay, *two* important metals in the alloy are not even mentioned.

Dr. Flagg also expends much eloquence on the qualities of gold and platinum in alloys. It is evident that the use of gold in an amalgam has never entered into his mind, and he remains unaware that gold is used in amalgam, in this country, at all events, solely for the purpose of making it clean and pleasant in working, and that its other properties are comparatively unimportant, and, in many respects, similar to those of tin. It is very well known that the setting time of any silver-tin alloy can be ruled by the proportion of platinum added. Why Dr. Flagg should take so very much trouble to inform his readers that he does not know this, is not easy to explain.

THOMAS FLETCHER.

CHLORIDE OF METHYL SPRAY.

BROOKLYN, N. Y., April 2, 1890.

Editor DENTAL ADVERTISER:

DEAR SIR:—At a meeting of the Brooklyn Dental Society, held on Monday, March 24th, 1890, the following resolution was offered and adopted:

Resolved, That a copy of the last section of the report of the Chairman of the Clinic Committee, relative to the chloride of methyl spray, be forwarded to each of the dental journals, with the request that they publish the same. In consideration of which, I herewith enclose a copy of said section, and sincerely trust you will give it space in your journal.

Very truly yours,

LOUIS SHAW, *Secretary*.

The following is a copy of the last section referred to:

“At a stated clinic of the Brooklyn Dental Society, held at 444 Fulton street, Brooklyn, on Monday, March 24, 1890, Dr. M. L. Rhein repeated his clinic with chloride of methyl, and satisfied all present that he has suggested the most efficient and painless anæsthetic for sensitive dentine yet introduced. It is undoubtedly better than the spray from a nitrous-oxide cylinder, which was described and demonstrated recently before the Odontological Society, in New York. Your committee thinks this agent of so much consequence to us, and the method such a boon to suffering humanity, that it suggests that a copy of this part of the report be sent to all the leading journals, that the matter may be brought to the attention of the profession in a prominent way, immediately.

“It has been previously demonstrated that dehydration produces anæsthesia in dentine, and that sprays have this effect. But all sprays, except this, produce considerable pain. The chloride of methyl spray acts so instantaneously that the pain is only a momentary shock at most, and is not complained of by the patients. It may seem that this is a strong report from your committee, but since the last clinic your committee has thoroughly investigated this method and seen it satisfactorily demonstrated in a large number of cases.”

THE CEMENTS PREFERRED.

Editor DENTAL ADVERTISER:—Your reproduction of the editorial in the *Dental Review*, on the subject of “Treatment of Teeth Preliminary to Filling,” attracted my attention because it deals with materials used in my practice. The cements are much preferable, as a temporary filling, to gutta percha or rubber. As to the matter of using them, as a preliminary treatment,—this I think unnecessary, unless there is

some slight inflammation of the pulp; however, I invariably use cement as a non-conductor under metal, where the cavity is at all deep. I think that when used as a preliminary treatment, cement always leaves the margins in a better condition—brought about by a healthy stimulus to the tubuli and perfect exclusion of moisture.

EUFAULA, ALA.

C. L. BOYD, D. D. S.

PROFESSIONAL DIGNITY.

The men engaged in the mechanical operations of cleaning, plugging and pulling teeth are holding a State convention at Springfield. They are very severe on the members of their craft who resort to the vulgar practice of advertising. One speaker declared that "advertising lowered the dignity of the profession and fostered quackery." All his hearers acknowledged that such was the case.

Perhaps it would be a good thing to have the dignity of the profession lowered a little. It costs a great deal to support it, and the majority of people who want to have their chewing apparatus repaired, cleaned, and put in good working order do not think it pays. They object to so much dignity. They want some mechanical work done, and are willing to pay a fair price for it. They are willing to hire a dentist by the day, or to contract for a job, but they do not want to contribute a cent to support professional dignity.

If dentistry is a profession, it takes its place at the foot of the list. Many think it should be classed among the trades. It requires less skill to plug a tooth than to repair a watch. But as watch cleaning is a trade, the man engaged in it has no professional dignity to support. He accordingly advertises if he wishes to increase his business. He will also state how much he will ask for doing a certain job. The professional dignity of a dentist, however, prevents him from doing this.

Much is said about the cost of supporting royalty in monarchical countries. But the people of the United States pay more for supporting the dignity of the alleged profession of dentistry than the people of Russia do for supporting the dignity of the royal family. Most persons would like to dispense with so much dignity, pomp and circumstance, and have their dentists' bills reduced about seventy-five per cent.—*Chicago Herald*.

A WORD FOR THE DENTISTS.

Editor of The Herald:—In *The Herald* of Friday appeared an editorial entitled "Professional Dignity," which is a severe blow at one of the most honorable of all professions—dentistry. It may seem to many who are familiar with the great and rapid progress of oral surgery to be a work of supererogation upon my part to attempt to establish its right to be ranked with the highest of the humanities—*Si queris monumentum circumspice!* But the editorial by its pungency is liable to mislead. Is it not a well-known fact that the world owes to dentistry that greatest of all discoveries—anæsthesia—which was freely given to the world? Does that look like trading? Is it not well recognized that the science and art of dentistry have together relieved the world of some of its most formidable maladies? Is it not without dispute that the latest and best developments in histology, in biology, in bacteriology, have been the work of dentists? Is it not recorded that the highest medical and surgical organizations have made oral

surgery a prominent section in all their deliberative assemblies? I am astounded at the sweeping assertion that "it requires less skill to plug a tooth than to repair a watch." One would be led to think from such a remark that the author of it had indeed formed his estimate of dentistry upon his experience with those journeymen tooth carpenters of which he believes the whole profession to be composed. Can any rational person compare the manipulation of the lifeless metal that enters into the composition of even the most delicate mechanism with that wonderful vital organ through whose labyrinthine structure pass the currents of nutrition and waste, and whose nerve communication with the general organism is so perfect that the slightest interference with it jars the very citadel of life itself? This argument could be extended *ad infinitum*, but it would be useless to do so since the work of oral surgery speaks so eloquently for itself. But there is a moral side to this question which cannot be ignored. Is there any father of a family who would be pleased to know that the arm of every charlatan was placed about the person of his loved ones in those situations which a scientific reparation of a tooth renders so absolutely necessary? Are not the confidences necessary between the oral surgeon and his patients of too delicate a nature to fall into the hands of those Philistines who auctioneer their wares with blatant impudence about the camps of science? I, for one, believe they are. I am not a dentist myself, but I know what dentistry is and what it is destined to be, and I am sure that every honorable man and virtuous woman will bid godspeed to every effort to elevate the dignity of this noble profession.

T. O. SUMMERS.

DEFENDING DENTAL DIGNITY.

Editor of The Herald.—I am surprised to see in the editorial columns of *The Herald* an article casting a slur upon the profession of dentistry. As long as dental work is performed upon living structures it cannot be called strictly mechanical work, although it calls for mechanical skill of a high order. The comparison which is made is absurd. Let a watchmaker endow the works of a watch with life and feeling and place them in a remote part of a person's mouth, and he would find a task which would be an impossibility. According to the ideas advanced in the article, any one with sufficient skill to saw off a piece of wood, or cut a slice of beef, is perfectly competent to perform operations in surgery, another merely mechanical art. In regard to the cost of dentistry, there is nothing so cheap when we consider the amount of use we make of our teeth. The average man spends about ten times as much upon his barber as upon his dentist. The expenses of living, clothes and amusements are met as a matter of course, but there is a terrible outcry at spending a little upon those faithful servants of ours, the teeth. Let any one divide the amount spent upon his teeth by the number of years they are expected to do duty, and he will candidly acknowledge there is no bill so moderate and reasonable as the dentist's. As to advertising, there are about 500 licensed dentists in Cook County, and a glance at the dailies will show about ten to fifteen advertising regularly. The fact speaks for itself; and I would like to ask, to whom will people go in the hour of distress, suffering for relief and assistance? Why, to the reputable, able and conscientious men who believe in the "dignity of the profession"—a profession which is making giant strides in the elevation of a noble art and the relief of suffering humanity. Yes, dentistry is a profession, and not by any means at the foot of the list, as time will show.

A PROFESSIONAL DENTIST.

—*The Dental Review*.

BOOK NOTICES.

ARTIFICIAL ANÆSTHESIA: A MANUAL OF ANÆSTHETIC AGENTS AND THEIR EMPLOYMENT IN THE TREATMENT OF DISEASE. By Laurence Turnbull, M. D., P. H. G., Aural Surgeon to the Jefferson Medical College Hospital, Philadelphia, etc. Third Edition. Revised and enlarged. With Illustrations. Philadelphia: P. Blakiston, Son & Co. 1890.

It is with pleasure that we notice this book, so well known and highly esteemed among those who make use of anæsthetics. The simple announcement of a new edition should be sufficient to create a demand for it, but we fear it would be an injustice both to author and publishers to be so brief. Any comment we would make would be in its favor, as like everything done by the author, there is a thoroughness in the work of revision that commends the book to medical and dental practitioners as the most perfect manual on the subject in the English language.

That the author, notwithstanding his years of experience, recognizes the dangerous character of anæsthetics is quite manifest from the notes of warning pervading the volume, a sample of which is given in the preface, as follows:

All hopes have passed away—for the time being at least—that any one of the systemic anæsthetics is absolutely free from risk to life, for we now know full well that anæsthesia carried to the effect of profound impression on the human subject, sufficient for a capital operation, is but a step from death. * * *

It has been proven in numerous cases that it requires but a slight excess in the quantity employed, perhaps a lack of atmospheric air, great fear or dread concerning operation or anæsthetic, the faulty or non-action of a deranged kidney or heart, perchance a careless administration—and the patient is dead. In making the additions and alterations to our manual, necessary at the present day, many changes have led to an increase in the size of this book.

We would advise all who are obliged to use anæsthetics, to memorize the prominent points, so that when a case of emergency rises it will not be necessary to seek information in the book, and all unnecessary haste, worry and confusion would be avoided, knowing just what to do for the best interest of the suffering patient, nigh unto death.

The indiscriminate and careless administration of the most powerful anæsthetic agents is the crying evil of the present day, and we feel sure that in the near future legislative action will be taken to prevent, under heavy penalty, any one from giving an anæsthetic, unless he or she be provided with a certificate that they fully understand the chemical, physiological and medical agents they are about to employ, and have had experience in their use under a competent surgeon, and have been subjected to a careful examination of the knowledge they have thus acquired.

Human life is too valuable, at the present day, to be destroyed by incompetent administrators of such beneficent, yet death-giving agents.

The following is the most recent warning on this subject: "The announcement that the anæsthetist, in a fatal case of chloroform narcosis at Sidney, Australia, had been found guilty and sentenced to pay two hundred pounds damages, on the ground that the anæsthetic had been improperly administered, comes with rather a startling effect. While no conscientious man, be he lay or medical, will dispute the justice of such a verdict when negligence is clearly proven, difficulties arise when such matters are adjudicated upon by a jury of persons who, whatever their intelligence, are profoundly ignorant of what constitutes negligence in this respect.

"It would be but a step further for juries to enforce the opinion, which has been gaining ground, as to the advisability of giving chloroform at all, unless specially indicated.

Still, this is a matter well within the discretion of the medical man, and it would be impolitic, as well as unjust, to fetter the exercise of that discretion by a fear of legal consequences.

"Short of negligence, amounting to a criminal act, we cannot conceive of such a verdict in this country [England], and we sincerely hope that the example will not be the means of imposing an additional horror to the life of medical men, who have enough to attend to in guarding themselves against vexatious actions for having signed lunacy certificates, and in avoiding the wiles of designing women with an eye to blackmail."

Next to one's Bible this manual should be in the possession of each and every dentist in the land.

REVUE INTERNATIONALE DE BIBLIOGRAPHIE, MÉDICALE, PHARMACEUTIQUE ET VÉTÉRINAIRE. Dirigé par Le Docteur Jules Rouvier, Professeur de clinique obstétricale et gynécologique à la Faculté française de médecine de Beyrouth (Syria), 1890.

This volume, printed in French, is a bibliography of medical and surgical literature, and its various branches. The subjects are arranged under thirty-eight different heads, Odontology being included. The first volume makes a book of nearly 300 pages, and it is presumed that subsequent volumes will be much larger. Further information can be obtained from Dr. Rouvier, Beyrouth, Syria.

THE STUDENT'S MANUAL AND HAND-BOOK FOR THE DENTAL LABORATORY. By L. P. Haskell, Professor of Prosthetic Dentistry, Dental Department of the North-Western University, of Chicago, Ills. To which is appended Dr. Edward H. Angle's "System of Appliances for Correcting Irregularities." Second Edition. Philadelphia: The Wilmington Dental Mfg. Co., 1890. Price, \$1.50. For sale by Buffalo Dental Mfg. Co.

The increasing interest in dental mechanics has caused the modest little hand-book, representing the first edition, to be expanded to a manual of goodly proportions. This expansion is not due to windy, meaningless words, but to healthy, practical advice and receipts. Its only fault is in the brevity of the descriptions of processes and procedures; but to a mechanic the explanations are sufficiently clear, while to the novice—well, there is not sufficient irrelevant material in the book to stuff a brainless skull, anyway.

Crown and bridge-work has not been considered in this book, as the recent work of Dr. George Evans seems, in the experience of Dr. Haskell, to have covered the field completely. A very valuable addition is that of the method of correcting irregular teeth, and their retention, by Dr. Edward H. Angle, of Minneapolis, Minn.

This work is truly a practical book by a practical man.

BOOKS RECEIVED.

THE TREATMENT OF TORTICOLLIS (Wry-Neck). By Charles F. Stillman, M. Sc., M. D., Chicago, Ill.

A PRACTICAL SPLINT FOR INFLAMMATORY CONDITIONS OF JOINTS. By Charles F. Stillman, M. Sc., M. D., Chicago, Ill.

A RATIONAL BRACE FOR THE TREATMENT OF CARIES OF THE VERTEBRÆ (Pott's Disease). By Charles F. Stillman, M. Sc., M. D., Chicago, Ill.

REMARKS ON HYPERTROPHY AND ATROPHY OF TISSUE. By G. Frank Lydston, M. D., Chicago, Ill.

THE LOCAL TREATMENT OF SYPHILITIC PHENOMENA. By G. Frank Lydston, M. D., Chicago, Ill.

A LECTURE ON SEXUAL PERVERSION, SATYRIASIS AND NYMPHOMANIA. By G. Frank Lydston, M. D., Chicago, Ill.

FRIESE'S DENTAL BOOK. A combination appointment and record book. Published by H. D. Justi, Philadelphia, Pa.

THE BROOKLYN HEALTH EXHIBITION, held under the auspices of the local committee of arrangements of the American Health Association, at its Seventeenth Annual Session, at Brooklyn, N. Y., October 22, to November 30, 1889. Report of Special Committee on Exhibits and Awards.

APPARENT CANCEROUS TRANSFORMATION OF SYPHILOMA OF THE TONGUE. By G. Frank Lydston, M. D., Chicago, Ills.

A COMMUNICATION from "Jack the Ripper." By G. Frank Lydston, M. D., Chicago, Ills.

DENTAL PATENTS.

ISSUED FOR THE QUARTER PRECEDING THE DATE OF THIS JOURNAL.

- 423,467—March 18, 1890.—ARTIFICIAL TOOTH CROWN.—E. Parmly Brown, Flushing, New York.
- 423,616—March 18, 1890.—GALVANIC APPARATUS FOR DENTAL SURGERY.—Charles William Manker, Nebraska City, Neb., and George F. Manker, Bedford, Iowa.
- 423,617—March 18, 1890.—ELECTRICAL DEVICE FOR USE IN DENTAL OPERATIONS.—Charles William Manker, Nebraska City, Neb., and George F. Manker, Bedford, Iowa.
- 424,050—March 25, 1890.—ARTIFICIAL TEETH.—George L. Curtis, Chicago, Ills.
- 424,716—April 1, 1890.—TOOTH BRUSH.—Isaac Lichtenstein, New York, N. Y.
- 424,790—April 1, 1890.—DENTAL MATRIX RETAINER.—James W. Ivory, Philadelphia Pennsylvania.
- 424,924—April 1, 1890.—DENTAL BRIDGE.—George L. Curtis, Syracuse, N. Y.
- 424,942—April 1, 1890.—VULCANIZING APPARATUS.—Alonzo B. Woodard and Richard W. Barney, Hornellsville, N. Y.
- 425,344—April 8, 1890.—DENTAL PLUGGER.—Frederick C. Ries, Macon, Ga.
- 425,650—April 15, 1890.—DENTAL TOOL.—Benjamin J. Bing, Paris, France.
- 425,654—April 15, 1890.—TRUCK FOR DENTAL CHAIRS.—Benoni S. Brown, Boston, Massachusetts.
- 425,897—April 15, 1890.—DENTAL POLISHING DISK.—William N. Morrison, St. Louis, Mo.
- 426,253—April 22, 1890.—TOOTH SEPARATOR.—Walter S. Elliott, Hartford, Conn.
- 426,328—April 22, 1890.—DENTAL ENGINE.—Andrew Ritter, Utica, N. Y.
- 426,733—April 29, 1890.—DENTAL SEPARATOR.—John G. Morey, New York, N. Y.
- 426,994—April 29, 1890.—DENTAL GRINDING AND POLISHING WHEEL.—Louis M. Halsey, Brooklyn, N. Y.

- 427,070—May 6, 1890.—ELECTRIC DENTAL PLUGGER.—William E. Gibbs, New York, N. Y.
- 427,275—May 6, 1890.—DENTAL ELEVATOR.—Daniel Siddall, The Dalles, Oregon.
- 427,338—May 6, 1890.—DENTAL MATRIX.—William H. Marshall, Oxford, Miss.
- 427,780—May 13, 1890.—HAND-PIECE FOR DENTAL ENGINES.—William R. Marsh, Boston, Mass.
- 428,019—May 13, 1890.—MANDREL FOR DENTAL DISKS.—John Pugh, Philadelphia, Pennsylvania.
- 428,139—May 20, 1890.—DENTAL FLASK.—John E. Register, Dover, Del.
- 429,285—June 3, 1890.—ARTIFICIAL TOOTH.—Alfred Page and Samuel S. Bloom, Philadelphia, Pa.
- 430,420—June 17, 1890.—SLIP JOINT AND COUPLING FOR DENTAL ENGINES.—David E. Coulson, Galesburg, Ills.

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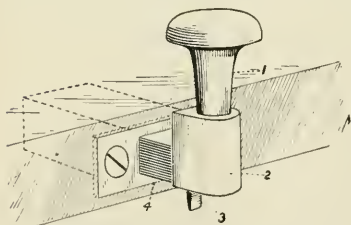


Fig. 4 in the cut represents the socket mortised in the edge of the work-bench. Fig. 2 is the shank partly withdrawn. Fig. 3 is the latch to hold the shank in position; it must be lifted before the shank can be removed. Fig. 1 is the maple wood top, or filing post proper; the other parts are made of brass.

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THE DENTAL ADVERTISER.

VOL. XXI.—BUFFALO, N. Y., OCTOBER, 1890.—No. 4.

NEW METHOD OF VULCANIZING RUBBER PLATES.

BY GEORGE B. SNOW, D. D. S., BUFFALO, N. Y.

In THE DENTAL ADVERTISER for 1887, the subject of *shrinkage of rubber* during the vulcanizing process was discussed at some length. It was shown that during the process of hardening, a mass of rubber compound experienced an actual decrease in bulk, its specific gravity being considerably increased. The *expansion of rubber by heat* also received some notice, and the following experiment was suggested, as affording proof of the facts asserted :

“Let a cube of unvulcanized rubber compound be made of about $\frac{5}{8}$ inch dimensions. It may easily be built up of squares cut from a sheet of gum. Let it be invested in plaster in a dental flask, by placing it on a bed of soft plaster and immediately filling the flask. There will be no parting joint, and no escape for the rubber. Let this be vulcanized after standing twenty-four hours, or long enough to insure a complete and thorough hardening of the plaster. The result is shown in Figure 1.

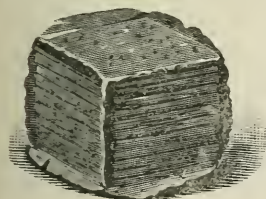


FIG. 1.

“It will be observed that the plaster has cracked at each angle of the cube, and a thin fin of rubber has been injected into the opening. The expansive force of rubber, as illustrated above, is one source of the trouble

experienced in putting up dental plates. If the rubber is closely confined, a force may be exerted by its expansion which the contents of the flask can not resist. Broken blocks, open joints between the sections, teeth

forced out of place; all these annoyances are due to the close confinement of the rubber by insufficient gateways, or from their being filled with surplus rubber by careless packing.

“Another inspection of this cube will show that the sides, instead of being flat, as they were when it was flaked, are concave. The section, shown in Figure 2, shows this very plainly. In this case, the shrinkage, following the plane of least resistance, took place chiefly on one side—the top; small air bubbles in the plaster retaining the other sides, and preserving them in nearly their original shape. The

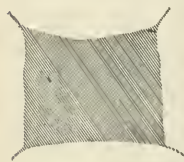


FIG. 2.

concavity, being nearly all on one side, is all the more perceptible. The explanation of this phenomenon is very simple: the rubber, as it hardened, became more dense, and suffered a sensible diminution in its bulk. This shrinkage is inherent to the process of vulcanization, and occurs with all rubbers, unless vulcanized at such a heat as to render the mass spongy in the center. The manner of vulcanizing makes little if any difference. Whether invested in plaster or closely enveloped in heavy tinfoil; whether vulcanized under water or in steam; whether the compound be rubber and sulphur alone or largely composed of pigment or other foreign matters; black, red, pink, or amalgamated rubbers; the result in all cases is the same, varying in degree according to the amount of foreign matter contained in the compound. Sides of samples which were flat before vulcanizing are invariably concave afterwards.”

The term “shrinkage” will be used in this article to designate the alteration in bulk and specific gravity which rubber undergoes in the process of its transformation into vulcanite.

The terms “expansion” and “contraction” will be similarly used to denote the changes induced in the mass by changes in the temperature.

The term “mechanical pressure” will be used to denote the pressure brought to bear upon the contents of the mould by the act of closing the flask.

The pressure which the rubber exerts upon the mould as it expands when heated, will be called “expansive pressure,” in contradistinction to “steam pressure,” which is brought to bear upon the flask and its contents by the evaporation of water contained in the vulcanizer during the vulcanizing process.

Shrinkage is greater in amount, in proportion to the purity of the rubber compound. Its effects are well known to be more apparent and more annoying with black than colored rubbers; the latter containing a large amount of foreign matter, which undergoes little or no change during the vulcanizing process. Black rubber has, indeed, been discarded by many, on account of its excessive shrinkage; notwithstanding

the fact that deleterious effects upon the health have been observed arising from the use of red rubber in the mouth.

The effects of shrinkage may be seen, and have often been noticed by those who, in the process of repairing rubber plates, have occasion to remove a block of teeth therefrom. If there is any considerable amount of rubber under the teeth, a space will be found between the two into which a thin instrument can be easily passed. This space is usually a receptacle for the debris of food, which, being there retained, decomposes and gives off disgusting odors.

It is the frequent experience of those wearing rubber plates, that, notwithstanding any efforts which may be made to secure cleanliness, the odor from them will be sufficiently strong to affect the breath. The reason is apparent if there are pockets under the teeth, full of decomposing organic matter.

This condition of things was known and recognized in gold plates, when the teeth were ground and fitted to the plate, and afterward backed and soldered thereto. No one could make a joint under such circumstances so close as to exclude organic matter. And one reason why rubber came so rapidly into use, was the fact that it seemed to promise immunity from this defect.

Sometimes defects betokening shrinkage will be apparent, as when crevices are seen at the shoulders below the crowns of bicuspid and molars; but it is more often the case that the dentist is wholly unaware of any imperfection in the plate. The joints between the teeth and rubber will appear to be perfect, the defects remaining unsuspected, possibly until repairs are needed, and it becomes necessary to remove some of the teeth from the plate. At this time it will often be found that the teeth are imperfectly supported, there being spaces under them filled with the debris of food, and that, moreover, the pins are not well anchored in the rubber. If plain teeth have been used, the defects are often apparent from the start, and single teeth, standing alone, are sometimes so loose as to necessitate making the plate over.

The assertion is here made that the defects mentioned above are the rule, and not the exception; and although the statement will, no doubt, be denied, it is the fact that their existence can be demonstrated in the majority of rubber plates.

There is also a question whether shrinkage is not to blame for the difficulty sometimes experienced in fitting rubber plates to mouths requiring a considerable amount of so-called "restoration," involving the use of a large amount of rubber over the alveolar ridge. It is the experience of any dentist who has had much to do with rubber plates, that the best fits and most satisfactory plates are those in which it is possible to set the teeth close to the alveolar ridge, leaving but little rubber under

them; while annoyance is usually experienced when the use of a large quantity of rubber is required at this point. These facts have been recognized and deplored by many dentists, but as yet no one has pointed out a method by which shrinkage can be perfectly controlled. It is almost a self-evident proposition that if the rubber can be made to apply itself closely to the teeth, leaving no interstices for the detention of particles of food, securing perfect support to the teeth and perfect anchorage for the pins, that a more cleanly, durable and satisfactory denture can be constructed on vulcanized rubber than has heretofore been done.

A few experiments recently made have thrown some light upon the subject, and it is now believed that a method can be pointed out by which the defects and annoyances heretofore alluded to can be wholly overcome, and that the perfect vulcanization of a dental plate can be made an easy matter. The results of these experiments and the process of vulcanizing deduced therefrom, will form the subject matter of the succeeding portion of this paper.

To determine the time at which shrinkage occurs, a number of samples of rubber were vulcanized at times varying from ten to ninety minutes, at the same temperature, 320° ; the Coolidge Regulator being used to insure uniformity in temperature.

The specific gravity of the specimen of unvulcanized black rubber was 1.13398. The same rubber vulcanized for forty minutes at 320° and imperfectly cured, had a specific gravity of 1.19082. At the end of one hour, when it was thoroughly hard, it was 1.19284. It will be observed that the increase of specific gravity for the first forty minutes was $1.19082 - 1.13398 = .05684$, while for the next twenty minutes it was only .00202; showing that the greater part of the shrinkage took place in advance of the hardening process, and was nearly completed during the first forty minutes. The relative bulk of the same mass of rubber, soft and vulcanized, would therefore be 1 to .9506.

The writer has been unable to find any data giving the rate of expansion, by heat, of crude rubber. Samples from different localities differ to some extent in their physical characteristics and in their composition; and it is quite possible that their rate of expansion, if ascertained, would be found to vary. It has been found experimentally, however, that the expansion of vulcanizable gum from 212° to 320° amounts to about as much as its shrinkage in vulcanizing.

The expansion of vulcanite (black) is set down as .0000428 of its length for each degree (Fahr.) between 52° and 77° . Between 77° and 95° it is .0000468 for each degree. These numbers give the average between the temperatures named. It will be observed that the rate of expansion increases with the temperature, as is usual with solids. Allowing that the rate of increase remains constant, its linear contraction in

cooling from 320° to 80° will be as 1 to .99369. Its cubical contraction, or decrease in bulk, would be as 1 to .9812; much less than its shrinkage. By the conjoined action of shrinkage and contraction, a mass of rubber, being vulcanized, would be reduced in bulk as 1 to .9388.

In the ordinary method of moulding a plate in a bolted flask, gateways are cut, to provide for the escape of surplus rubber, and the mould is packed with a sufficient quantity of gum to fill it. The two parts of the flask, being bolted together, are heated to soften the rubber, and the flask is closed; any surplus rubber oozing from the mould into the gateways. The flask is then put into the vulcanizer, and heated to the vulcanizing point. While the heat rises, the rubber continues to expand; and it is constantly oozing from the mould into the gateways. If it were cooled, even before it reached the vulcanizing point, there would certainly be a vacuity somewhere in the mould from contraction.

The moment the vulcanizing point is reached, and the temperature becomes stationary, shrinkage begins; the expansive pressure is relieved, and in a few moments the mass of rubber becomes too small to fill the mould. As it adheres to the surface of the plaster, it is drawn away from the teeth and pins, to which it has less adhesion; as the rubber will not pass from the narrow gateways back into the mould to fill the vacuity, except possibly to a very limited extent.

If radiating gateways are not cut extending into the mould, but merely a circumferential chamber of escape be employed, from which the rubber in the mould is entirely cut off as soon as the flask is closed, the use of bolts to hold the parts of the flask together will be found to be very dangerous. The rubber, in its expansion as it is heated to the vulcanizing point, will exert a force which the plaster mould cannot resist, and the consequence will be the injection of rubber into the joints, and possibly the cracking of the blocks and their displacement.

If the mould, prepared in this manner, is held in a spring clamp while vulcanizing, the expansion of its contents will cause the spring to yield, allowing the flask to open a trifle; and a certain quantity of the rubber will escape into the chamber surrounding the mould. The escape will not be free, and the natural elasticity of the rubber will allow of the retention of some of it which would escape if the radial passages were present. The increased pressure upon the rubber will be likely to cause its injection into the joints between the blocks, and if any of it escapes there will be a vacuity from shrinkage; it is quite possible, however, that it will be less than in the former case.

To produce perfect results, the mould must contain just that quantity which will fill it when vulcanized, at a temperature so low that it will have no tendency to "flow," or change its shape permanently.

After the rubber is pressed into the desired shape, or in other words, after the mould is packed, it must be relieved of any constraint which will resist the the expansion of its contents by heat and cause them to escape.

After the shrinkage incident to vulcanizing has taken place, the mould must be pressed, to force the rubber against the teeth and pins; and this pressure must be continued until the plate is nearly or quite cold.

To test this theory, a set of teeth was mounted, setting them at a considerable distance from the model. They were flaked, the usual gateways were cut, radiating from the mould, with an encircling channel. The mould was then packed with black rubber, substantially in the manner above suggested. The flask was left free to open as the rubber expanded by heat, and pressure was applied to close it, nearly at the conclusion of the vulcanizing process. Another set, a counterpart of it, was mounted, flaked in a bolted flask, packed with the same kind of rubber, and vulcanized in the ordinary way; the flask being firmly bolted during the process. Both sets were allowed to remain in the flasks until cold. When they were vulcanized and finished, one set could not be distinguished from the other. They were both perfect, so far as could be judged by outward indications.

A bicuspid block was then broken out of each set. In the first set, the pins which held the block were found to be firmly held by the rubber, which also fitted closely against the under sides of the teeth, so that the joint was apparently perfect. In the other, the pins were loose; and there was a considerable vacuity under the remaining blocks, nearly a thirty-second of an inch in depth.

The sound given forth by these plates when dropped upon the table was distinctive and characteristic. The first gave a ringing sound as though it were but one piece; the other rattled as if cracked. They could be easily distinguished from each other in this way with the eyes shut.

This experiment was performed with the Crane vulcanizer, which has a screw-press attached to it, with a spring interposed between the screw and the presser-foot which bears upon the flask. This mechanism gives perfect command of the amount of pressure applied to the flask and the time of applying it. It therefore fills all the requirements of the method of vulcanizing suggested above; giving a gradual and equable pressure, which can be applied at any time during the vulcanizing process, as desired. The amount of time and attention required is but a trifle more than is requisite with the old method.

A number of plates have since been moulded by this method, for use. Their adaptation to the mouth is good, and they have proved satisfactory in every way.

The same results can be attained in an ordinary vulcanizer, but it will be necessary to heat the flask twice. It will also be advisable to use some

kind of a spring clamp, possessing power enough to make the rubber flow and re-adapt itself when re-heated. The *modus operandi* will be as follows: Pack the mould with rubber as usual, and close the flask either with bolts or a flask-press, as may be preferred. Before putting it in the vulcanizer, slack off the bolts sufficiently to allow the flask to open when the rubber expands by heat, so that it will not be forced into the gateways. After it is vulcanized, let it cool slowly until there is no steam pressure upon it; then remove the flask, place it in the spring clamp, replace it in the vulcanizer and re-heat it to 320° , and allow it to cool slowly. It is *always* best to keep the flask in the clamp and under pressure until cold.

In this case, the mould contains more rubber than it would if held firmly, by the amount which would have been forced into the gateways by expansion as the heat was raised to the vulcanizing point; and this amount is sufficient, or nearly so, to completely fill the mould while hot and after vulcanization. The rubber is harder and not quite so tractable as when partly vulcanized, and the process requires more care and attention than is required with a vulcanizer capable of pressing the flask at the proper time while vulcanizing; but the operator is thus enabled to test the theory herein set forth, and to satisfy himself of the benefits to be secured by putting it into practice.

This process may be varied by first vulcanizing the plate about three-fourths the usual time; then applying the pressure and re-vulcanizing to finish.

The following precautions must be observed. Any sudden change in the steam pressure may result in the formation of steam in the flask, and injury to its contents; as it is not held together as it usually is. Therefore no escape of steam, by opening the blow-off or blowing out the safety disk, should be allowed. Neither should the vulcanizer be suddenly cooled by putting it in water, or otherwise.

It is believed that the results obtained will amply repay the operator for what little additional trouble he will incur in using this method of vulcanizing.

SUBSTITUTE FOR IODOFORM.—Josef Messinger and Georg Vortmann, of Aix la Chapelle, have recently patented in the United States a substitute for iodoform, which consists of a red-brown odorless powder derived from iodine and salicylic acid, which is insoluble in water, alcohol, ether or oil, changing to a bright red powder by heating it with mineral acids and melting at about 225° centigrade, with decomposition, and being insoluble in alkalies.

BACTERIA IN MILK, CREAM AND BUTTER.

The following statements have been collated from reports of an investigation on the bacteria of milk, cream and butter, conducted in behalf of the Storrs station, Connecticut, by H. W. Conn, Professor of Biology in Wesleyan University, and are inserted here, as they give quite a correct idia of the microscopical organisms.—[Editor DENTAL ADVERTISER.

What are bacteria?—The terms *bacterium* (plural *bacteria*) and *microbe* are used to designate a class of organisms found abundantly in air, water, soil, and in plants and animals. As popularly used, the terms include a large number of organisms which the naturalists divide into three classes, bacteria, yeasts, and molds. Bacteria proper, which have most to do with milk and cream, are found in immense numbers everywhere, and play an important part in nature. They are all extremely minute. In shape they show three chief varieties, which may be compared to a lead pencil (*bacillus*), a ball (*coccus*), and a corkscrew (*spirillum*). With the highest powers of the microscope they appear as scarcely more than simple dots and rods. They are to be classed with plants rather than animals, in spite of the fact that many of them are endowed with motion.

What do bacteria do?—Bacteria multiply with the greatest rapidity. A single individual can in a few days give rise to countless millions. While thus growing they produce great changes in the substance in which they grow. Fermentation, such as raising of bread, fermenting of beer and cider, and the formation of vinegar; putrefaction and decay, such as rotting of potatoes and decay of wood, are produced by the bacteria, yeasts, and molds. They are of immense value as well as injury. Through their agency dead animal and vegetable matter is decomposed, and worked over so that plants can use it for food. It is doubtful whether vegetable life could long continue without their aid. On the other hand, many dangerous diseases—cholera, scarlet fever, typhoid fever, consumption, bovine tuberculosis, hog cholera, chicken cholera, etc.,—are produced by the growth of micro-organisms in the body. Although bacteria are so very small, there are different species just as distinct as those of larger plants and animals. The disease germs are mostly parasites upon the animal body, and many of them are unable to live elsewhere. The species of bacteria which produce disease are called *pathogenic* bacteria. But there are many other species which live free in the air and do no injury to animals. It is with these non-pathogenic bacteria that we have to do in the dairy.

Bacteria in milk.—Bacteria collect in milk and cream that have been exposed to the air, grow readily, and multiply rapidly. While growing in the milk they cause it to sour and curdle, and induce other changes

in it. Milk, as drawn from the healthy cow, is free from bacteria. Under ordinary conditions, however, it can not be kept free from them, for they will get into it from the hands of the milker, or the teats of the cow, or from the air with which the milk comes in contact. The vessels in which the milk is kept are the most common source of contamination. The bacteria collect upon the sides and in the joints of these, and here develop in the minute portions of milk, grease, or other matters from which it is difficult to free the walls of the vessels.

Effects of heat and cold—How to kill bacteria.—Within certain limits heat increases and cold retards their growth. Different species differ in regard to the temperature at which they grow best. Most species find the best conditions for growth at temperatures between 70° and 100° F. A few will grow quite readily at a temperature below 50° F. A temperature below freezing stops their growth. The heat of boiling water will kill the active forms, but several successive boilings are required to kill their spores (corresponding to seeds). It is not difficult to destroy bacteria after they have once succeeded in getting into the milk. This may be easily done by heating the milk to the boiling temperature for ten minutes upon three successive days. Milk thus deprived of bacteria is said to be sterilized, and if we prevent the further entrance of bacteria by closing the vessel tightly with a plug of cotton, it will remain sweet indefinitely.

Rapidity of growth in milk.—The number of bacteria present in milk depends chiefly upon the length of time that the milk has been standing and upon the temperature. Estimates made upon milk under different conditions have shown from 300,000,000 to 600,000,000 per quart. The effect of temperature is shown by an experiment: a specimen of milk which had been standing for four days in a cold place was found to have about 10,000,000 bacteria per quart. The milk was then allowed to stand in a warm room for seven hours, and during this time the bacteria increased a hundred-fold. From this it appears that the most effective method of preventing milk from souring is to keep it cool. Milkmen sometimes find that the morning's milk in summer sours before the milk of the previous night. It is easy to see why this happens. Milk when drawn from the cow is at a temperature best adapted for bacteria growth. The night's milking is cooled over night. The morning's milk, however, is poured directly into the cans, and the bacteria which have entered it are well started upon their growth before the night's milk is warmed by the air. The bacteria in the morning's milk actually get several hours' start, therefore, of those in the cooled milk of the night before. The immediate cooling of milk is thus of great advantage in preventing its souring.

Number of species in milk.—Between forty and fifty species of bacteria have been found in normal milk and cream. This large number is due

to the fact that the milk may collect almost any kind of bacteria that may be floating in the air. The individuals of most of the species are few in number and ordinarily are of little significance. A few species are almost universal and extremely abundant.

MEDICAL MATTERS IN OUR NORTH-WEST CORNER. SITKA'S SANITARY STATUS.

BY WILL. F. ARNOLD, M. D., ASSISTANT SURGEON, U. S. N.

The native population of this coast (for the interior, away from the rivers, is entirely inaccessible), after more than a century's contact with adventurers of many nationalities, but of great singleness of purpose, present rather unlovely mental and moral attitudes, and, from all that I can learn and see, a very deplorable physical dilapidation.

Their greatest virtue is truly an Indian trait—discretion. They never talk when they can avoid it, and but very rarely aim at the G flat minor of their civilized patterns. One would hardly hear the key of our ordinary conversation reached in a whole day in this village of nearly a thousand inhabitants, while “silence herself” would make a noise about a negro town of half this population, as every Southerner well knows. They seem to have no moral rectitude; and every injury may be atoned by blankets, their legal tender. The slightest service requires remuneration. Often a native has assigned his earthly possessions to a member of his own tribe for rescuing him from drowning, and the fee was fixed while the assignor was in the water and in his opinion *in articulo mortis*.

The cold and rainy weather that so predominates here has forced them to live together in large numbers, and their filthy habits have furnished abundant facilities for the propagation of all kinds of contagious diseases, which they either had or have acquired from the white man. Small-pox, measles, pneumonia and erysipelas, have in turn claimed their hundreds here in epidemic visitations; and consumption, syphilis and gonorrhœa more quietly and more surely do their insidious mutilation, and bring at length the merciful end.

Some of their customs would nauseate an ostrich. The nearest relatives of a consumptive will drink his expectoration as a proof of their devotion; and the urine of an entire family, voided in a common receptacle by no means ordained for this sole purpose, is much esteemed as a lotion for the faces of those excreting it.

The head-louse is eaten *a la bon bon*. I do not know whether the line excludes the body-louse, which with the crab-louse is a permanency.

On a hunting-trip not long ago, I met one of these medicine men and I found his shrewdness not the least discreditable to the body charlatan. He can only see slightly out of one eye, and he has been known to admit that his failing sight was the factor that inclined him to medical practice. He once hired a number of Indians to catch salmon for a cannery and paid none of them, although he had drawn all their money as contractor ; but instead, he somehow persuaded them that they owed him for the fish, and made them cut several hundred cords of wood in payment of the debt. This speaks volumes for his personal magnetism to one who knows an Aleut's shrewdness in financial matters. He explained to one of my companions the uses of his walrus-bladder gong, his fantastically-carved wand and rattle, and his hideous costumes, which are different, for different maladies ; but he indicated that his serious aim was to pull out bodily the offending entity.

These Indians all use hot water, both for its local and its hæmostatic effects, and they resort to multiple punctures for injuries and for chronic inflammatory troubles. The average Indian will submit himself to a severe surgical operation with alacrity, set his teeth in a bit of soft wood, and give little evidence of the pain he must feel.—*Extract from The Southern Practitioner.*

TOBACCO.

It does not seem reasonable to me that any one should use tobacco, which does not mean food, medicine, or anything else to the system but harm. And it surprises me more that any dentist would use it and expect to have patients respect his advice in regard to keeping their mouths clean, which in the majority of cases does quite as much as filling in preserving their teeth. In fact, filling teeth does not amount to much unless the mouth is kept clean. I say I do not see how any dentist dare to use tobacco in any form. The idea of a dentist having his mouth, gums, teeth and lips stained with liquid tobacco, and his breath loaded with the odor of tobacco, is enough to drive a dog away from him ; and if you do not believe it, try it sometime on a nice clean dog, and he will turn his head and walk away if you persist in exhaling a tobacco-laden breath in his face. I say there is no dentist that has any right to subject his patients to such a breath, ladies or gentlemen. He, leaning over them unavoidably while at work, is enough to make them sick, and no doubt it does sometimes, as it does me while at work for patients who use tobacco, and if mixed with the odor of beer it is simply horrible. I am sorry to say that I have known of otherwise good dentists who were guilty of imposing

just such a mixture on their patients while operating for them. In smoking, one's clothing, hair, beard, and even skin retain the odor of tobacco many days and even weeks after being exposed to the fumes of tobacco. I doubt if many dentists would be willing to indulge in anything else that would leave a stink with them so long as that of tobacco. And yet there are few smells that are more offensive to clean people than that of tobacco. I have been asked repeatedly by patients if chewing tobacco injured the teeth, and I have been able to answer the question, if they have used tobacco any length of time, by giving them a hand-glass and proceeding to examine their teeth with them, and as a rule the teeth would be found more or less abraded on the cutting edges, and sometimes very badly; indeed, in some cases nearly down to the gums. This may be in most part mechanical, caused by the extra amount of chewing necessary in the use of tobacco; but I do not think it is entirely so. I think the alkaloid, nicotine and the natural secretions of the mouth combine and form an acid which softens the surfaces of the teeth and makes them an easy prey to mechanical abrasion; but just what this acid is I have as yet not been able to find out; but I do find in most every case that on the side of the mouth where the tobacco is carried, there is a black decay at or near the gum, and sometimes two or three lines under the gum, often reaching half way around the neck of the tooth, and sometimes quite encircling the tooth. These decays are most often on the buccal surfaces of the lower molars and bicuspid, but frequently the molars and bicuspid of the upper mouth are affected as well; and in mouths where a great amount of tobacco is used, it attacks the incisors and fissures of the molars and bicuspid. These cavities are often extremely sensitive; and in the mouths of those who smoke every day—and some people smoke all the time they are awake except while at meals—I find a more or less absorption of the gums, the gum receding most from the palatine surfaces of the upper molars and bicuspid; in fact, the palatine root of these molars is often exposed nearly and sometimes quite to the apex, the periodontal membrane is entirely destroyed, and the exposed surfaces of the root coated over with a black glaze almost as hard as the tooth itself. I know of one case, a man I think about forty-five years of age, who had at one time an excellent set of teeth, and who has been an inveterate smoker since young manhood. He is losing his teeth one after another; they become loose and finally get sore and he has them removed, although there is no decay of the tooth proper. It is often said of a drunkard, "It is a great pity; he is an excellent, good-hearted fellow and a good business man, only he drinks." The same may be said of many good whole-hearted fellows in dentistry as well as out—they are in the full sense of the term gentlemen, except that they chew or smoke, or both.

Brothers in the profession, discard this filthy tobacco, keep our mouths clean, and be examples to our patients.—*Extract from Paper of Dr. S. D. Potterf, in The Ohio Journal of Dental Science.*

A BUSINESS MAN'S VIEW OF IT.

Dr. W. C. Barrett, of Buffalo, N. Y., who stands among those at the head of his profession, says in the April number of the *Western Journal*:

THE CRYING NEED AMONG DENTAL OPERATORS is for a motor which shall be sufficient for his needs. It has not yet been found. Electricity does not answer, for this usually implies the keeping in order of a powerful battery, and any one who has tried this knows what a provoking task it is. Water motors are in many cases impracticable, because offices are frequently on upper floors, where the pressure in such places as have a water supply is too often insufficient. A miniature steam engine requires too much watching, and is dangerous when neglected. Gas and hot-air engines have not proved practicable. There is a field here for the exercise of the ingenuity of some of our inventive geniuses. A full reward awaits the man who solves the problem.—*Dr. W. C. Barrett.*

Now, doctor, suppose some one of "our inventive geniuses" makes this important discovery, after months and perhaps years of careful study and experimenting and a considerable expenditure of money, how is he to reap the reward which you say awaits him? If he should happen to be so unfortunate as to be a dentist, in this case he would not be allowed to protect himself under cover of a patent; he would not be professional if he accepted the protecting care our government extends to him. He must step down and out of the ranks of the profession and take his place amongst the mechanics, in order to reap the reward held out to him by his co-laborers and for which he has worked so faithfully, whilst some professional brother who has not mechanical ability enough to properly sharpen an excavator, looks serenely down upon him and his invention, and objects to using or buying it because it is patented. What nonsense! Who is better able to invent a good motor for dental purposes than the dentist, the one who is to use it? The profession is rich in men of superior mechanical genius and skill, and why do they not take hold and invent this article to supply this crying need? Why? Because it would utterly fail to return to the inventor the reward, unless it were patented, and to patent it would be in the minds of many unprofessional. Competition in the way of manufacturing any article of merchandise is so great, that without protection in some way, no one with any business sagacity would undertake it, especially when it means a large expenditure of money in the way of tools made especially

for that work, and good for that work only. Then again that same competition is conducive to cheapness and inferiority in manufacturing, so that in a short while the article becomes so slighted and cheapened as to be almost worthless. To show what effect is produced upon inventors by the sentiments expressed against patents by many in the profession, you will often hear a remark like this: "Oh, well, if my invention was for any thing else but for something pertaining to dentistry, I might make something out of it."

Gentlemen, you are making a mistake. Instead of frowning down the inventor in your field, you should encourage him. Advance with the rest of the world! From your standpoint to be strictly professional means to stand still.—*T. A. L., in the Western Dental Journal.*

IMPRESSIONS OF DIFFICULT CASES.

DR. A. G. BENNETT—Mr. President, I have given much attention to this subject, and have tried almost all of the published methods, as well as several of my own. I am much pleased with Dr. Dean's method; but we often meet with obstacles that this does not quite overcome. As we all know, the dovetail *inter-dental* spaces are the points of greatest difficulty. I have lately struck a method by which the most difficult partial impressions are greatly simplified.

I had a very bad case, requiring the two laterals and a bicuspid, all the palatal surfaces being very bulging. I tried several of the usual methods, and failed. The question then occurred to me, why not obliterate these spaces *by the teeth required*? So I first selected the teeth and ground them up, and after drying the adjoining surfaces I waxed them in place with hard wax. I readily took the impression, afterward removing and placing the teeth in their positions. As you will see, this method requires no articulating out of the mouth, simply putting the wax plate in position and flasking the case. This week I took an impression of a very difficult case for the two laterals, the other teeth being much denuded at the necks. I ground up the teeth and simply sprung them into place, no wax being needed, and then very easily took a most perfect impression.

The advantages of this method are obvious. Besides dispensing with articulating and trying in, you can see exactly how the teeth are as to size, shape, and shade, and they cannot move out of place, being securely fixed by the impression.

I would not recommend this method for universal adoption; it is chiefly for difficult cases; and in such I have found not only nothing better, but nothing half so good. It is especially applicable where there

are small spaces. Where there are spaces articulating three or four teeth, it is not so good. I have used it with gum teeth and plain teeth, but it is better for the latter. I set them as firmly against the gum as possible. They can be removed afterwards, trimmed a little, and set up still higher by having them a trifle long at first.—*Dental Cosmos*.

DANGERS FROM NECROSED TEETH.

BY WILLARD P. BEACH, M. D.

Mr. A. has been under my immediate observation for the past ten years, and his case illustrates very forcibly, at least one of the dangers of retaining necrosed teeth in their sockets.

About nine years ago the second bicuspid of the right upper jaw contained a cavity, which was filled with amalgam, and shortly afterwards commenced to ache severely. He insisted on having the filling removed and the nerve killed, which was done. A few months later the tooth died and blackened, and a sinus opened through the gingival mucous membrane in the region of the tooth's root. This state of affairs lasted about two years, when a series of small abscesses occurred on the right pinna which lasted for about one month, and numbered ten or twelve in all. He recovered from the attack and was tolerably comfortable for a few months when the same experience was gone through with, but this seizure was more prolonged and severe. There were marked constitutional symptoms, and a large abscess made its appearance in the right temporal region. These attacks returned at intervals of a few weeks or months, for several years, each one being slightly more severe than the last, and finally involved the scalp of the right side. About this time a large abscess made its appearance on the knuckle of the little finger of the left hand, and the man commenced to show signs of marked reduction of health and strength.

I have enquired of several dentists as to whether they had ever known of a similar case, and they invariably answered in the negative.

I further noticed, that the vent in the mucous membrane closed, and it was shortly after such closure that the abscesses made their appearance. At last I decided to have the tooth extracted, which was done nearly a year ago, and since that time the patient has been in perfect health, which was an experience he had not known nearly all the time the dead tooth was in his head. The root of the tooth was very much softened and roughened, while the tooth socket and tissues surrounding it were quite sensitive to pressure.

To my mind, this was a case of septicæmia, which I can readily conceive to be the result of pent-up pus in the neighborhood of the dead root. I would earnestly recommend the removal of all dead teeth, for while we all know that necrosed teeth may be retained indefinitely without causing trouble in many instances, on the other hand, one such case as the above is sufficient to demonstrate that there is always impending danger of either septicæmia, pus in the Antrum of Highmore, necrosis of the alveolus, or numerous kindred affections, while a dead tooth is left in the jaw.—*Brooklyn Medical Journal*.

THE FITTING OF BANDS TO ROOTS.

This purely mechanical operation is undoubtedly the most defective of any performed by the average practitioner, and may lead to serious results, if not carefully executed. The cause of this state of things may be considered two-fold: First, lack of skill; second, hasty and careless methods.

The lack of skill is shown by the *tout ensemble* of the operation after the patient is dismissed, and is probably the greater of the two causes in bringing about so many failures.

The hundreds of students entering the profession every year are taught the latest methods of conserving the organs of mastication, and for supplying the place of lost members. This, at the present time, takes the form of crown and bridge-work, and, judging from our observations during the last year, we predict its speedy disrepute, unless more care is exercised in selecting proper cases, and more thorough work in completing the operations. It is only after much practice (on models, etc.) and a careful study of the whole subject matter, that any reasonable degree of skill is to be attained, and no one should attempt the operation upon a human being until such skill has been attained. The preparation of the root to receive the band causes most exquisite pain, even in the hands of skilled operators, but, when attempted by a tyro, who can measure the unspeakable anguish of the sufferer?

The second cause of failure is unpardonable—we may condone ignorance, but neglect is criminal. We hear of experts preparing the root, and inserting the crown, inside one hour, and have witnessed the clinics of some of these skilled operators, but have yet to see a perfect operation done against time. A poorly-prepared root can never receive a well-fitting band, and a root cannot be well prepared with very great haste, as hæmorrhage is one of the persistent obstructors of such a performance.

The first step in an operation of this kind, presuming the case to be favorable, should be a careful study of the direction of the root's axis,

so that in beveling the edge the band may go squarely to position, without leaving a sharp projection of the metal beyond the dressed surface, as such an occurrence will cause an inflammation of the surrounding soft tissues, resulting in a recession of the gum, if in nothing more serious. Next, in fitting the band, draw the band a trifle smaller than the prepared root, and the result will be a perfect adaptation.

The after stages require the same amount of consideration to produce an artistic and perfect piece of workmanship, and if all the details are conscientiously performed, the result will be happiness to both operator and patient.— *The Dental Review*.

A QUESTION OF LEGALITY.

James Buchanan, one of the members of the Trenton bar, proposes to fight the New Jersey State Dental Society, on the question of legality of the suit against Dr. Woodward, of Trenton. The suit was brought by the Society because Dr. Woodward did not register under the Marsh law, which was approved by Governor W. Abbott, on April 7, 1890. The Society, on the authority of the said law, claimed that Dr. Woodward was practicing his profession illegally. Dr. Woodward had registered under the law of 1880, and, therefore, claims that he is legally practicing his profession. Lawyer Buchanan proposes to cite numerous authorities in law who maintain that the said Marsh law is unconstitutional, both as regards the constitutional law of New Jersey, and the Fourteenth Amendment of the Constitution of the United States. The Fourteenth Amendment provides that no State shall pass any enactment which abridges the liberties and immunities of the citizens of the United States. The High Court of the State of New Hampshire has already declared a similar law to be unconstitutional. The fight between the State Dental Society and Dr. Woodward is enlisting the attention of the members of the profession throughout the country, and the result will be awaited with interest.— *New Brunswick (N. J.) Fredonian*.

A HUNDRED MILES FROM A DENTIST.

“When I hear a man talk about dentistry,” said Mr. Fuller, “I am reminded of my experience in Nevada.

“I had the toothache. I had it bad. It ached days and it ached nights and it woke with me in the mornings. The miners did what they could for me. They tried to dig the tooth out with their jackknives and

pry it off, and what I suffered under their manipulation no tongue can tell. It was furious. One day they suggested that I put some acid in it that they used in testing rock, and I tried that, and it eased it for a few hours, when it began again with redoubled fury. If we had pincers we would have had it out, but I decided it no go, and I had to give in and look forward to tramping to Austin.

"On the morning of my leaving I found a man who was going up with a pair of cattle and a pair of wheels. I went along with him, sick and weak from lack of sleep. It was 150 miles to Austin—five days and nights of travel. For five days and nights I suffered. I walked most of the time, rode some on the wheels; slept at night on the earth with a pile of sand scooped up for a pillow; had awful dreams; was exhausted by pain and worn to the bone. At last I struck Austin. Despairingly I hunted for a dentist. There was none. Finally I found a doctor who had an old pair of tooth-pincers. He set me down on a soap-box in a grocery store and he went for me; and, as it seemed to me, after two hours of agony he pulled that tooth from its socket and I rose for the first time in many days happy in relief. Since then I have never looked a dentist in the face without thanking God for their dispensation and that I am surrounded by them."—*Lewiston Journal*.

LAW OF THE STATE OF VIRGINIA REGULATING THE PRACTICE OF DENTISTRY.*

SECTION 1767. WHO MAY PRACTICE DENTISTRY.—From and after the passage of this act it shall be unlawful for any person to engage in the practice of dentistry in *the Commonwealth of Virginia, or to assist in the practice of dentistry as either assistant or employé*, or to receive license from any commissioner of revenue, unless such person has graduated and received a diploma from the faculty of a reputable institution where this specialty is taught, and chartered under the authority of some one of the United States, or of a foreign government, *acknowledged as such, and shall have obtained a certificate from the board of examiners duly appointed under the provision of section one thousand seven hundred and sixty-eight of Code of eighteen hundred and eighty-seven*, to issue such certificates; provided, *that persons who shall be engaged in the practice of dentistry in the Commonwealth of Virginia on the first day of January, eighteen hundred and ninety, and who shall comply with the requirements of section one thousand seven hundred and seventy-four of*

*Chapter LXXIX., Code of 1887, Amended and Approved January 28, 1890. (Amendments in Italics.)

this act shall be otherwise exempt from the provisions of this section; and provided further, that nothing contained in this section shall prevent a student who is pursuing a regular course of instruction from assisting a person in the practice of dentistry qualified as herein provided, or shall prevent any authorized physician or surgeon from extracting teeth for any one suffering from toothache.

SEC. 1768. BOARD OF EXAMINERS: THEIR APPOINTMENT AND TERMS.—The board of examiners shall consist of six practitioners of dentistry, of acknowledged ability in the profession, to be appointed by the Governor. The board shall continue to be divided into three classes with two members each, one of which classes shall go out of office each succeeding year; and the Governor shall annually appoint the successors of each class, as it goes out, for the term of three years. He shall make the appointments in each case from four persons who shall be nominated by the Virginia State Dental Association, and reside in different sections of the State. All vacancies for unexpired terms shall be filled by the Governor on nominations made by the board. If no nominations be made by the said association or board, as the case may be, or the nominations made be not approved by the Governor, he shall appoint such persons as he may deem fit.

SEC. 1769. THEIR DUTIES.—It shall be the duty of this board—

First. MEETINGS.—To meet annually at the time and place of meeting of the Virginia State Dental Association, or at such other time and place as the board shall agree upon, to conduct the examination of applicants.

They shall also meet for the same purpose at the call of any four members of the board, at such time and place as may be designated by said members. Thirty days' notice of the meetings shall be given by advertising in at least two of the daily papers published in the State.

Second. EXAMINATION OF APPLICANTS, ETC.—To grant a certificate of ability to practice dentistry to all applicants who undergo a satisfactory examination, and receive at least four affirmative votes; which certificate shall be signed by the members of the board, and be stamped with a suitable seal (which they may adopt).

Third. REGISTRY.—To keep a book in which shall be registered the name and qualification (as far as practicable) of every person to whom such certificate is granted.

SEC. 1770. TRANSCRIPTS FROM RECORD BOOK, EVIDENCE.—The book so kept shall be a book of record, and transcripts from it, certified by the officer who has it in keeping, with the seal of the board affixed, shall be evidence in any court of this State.

SEC. 1771. QUORUM.—Four members of the board shall constitute a quorum; and should a quorum not be present on any day appointed for

their meeting, those present may adjourn from time to time until a quorum be present.

SEC. 1772. PENALTIES.—Any person who shall, in violation of this chapter, practice dentistry in this State, shall, on conviction thereof, be fined not less than fifty nor more than two hundred dollars, and shall not be entitled to any fee for service rendered; and if a fee shall have been paid, the patient may recover back the same.

SEC. 1773. DISPOSITION OF FINES.—All fines collected under this chapter shall go to the public school fund of the county or corporation in which the prosecution is had.

SEC. 1774. DENTISTS REQUIRED TO REGISTER.—*Every person practicing dentistry in the Commonwealth of Virginia, at the time of the passage of this act, shall register his name and post-office address, together with the name of the college from which he is a graduate, or the length of time he has been practicing in this Commonwealth, with the board of examiners before renewing his license, and it shall be the duty of the board to issue to each person so registering a certificate of registration stamped with the seal of the board, but no fee shall be collected by the board from persons so registering.*

SEC. 1775. FEES FROM APPLICANTS.—To provide a fund to carry out the provisions of section seventeen hundred and sixty-nine, it shall be the duty of the said board to collect from those who appear before them for examination the sum of ten dollars each.

SIMPLE METHODS.

BY PROF. L. P. HASKELL, CHICAGO, ILL.

It does seem strange that so many dentists cling to methods of work that are cumbersome and difficult. As an illustration, take the use of zinc for dies. It is not reliable; it is difficult to use; it does result in annoyance, and worst than all, *misfits*.

And still the students in most of the colleges are put through the ordeal of making zinc dies, no matter if they have previously been instructed in and realized fully the benefits of the simpler methods of Babbitt metal; and recently the *Journal* published an article upon the making of zinc dies, which demonstrated that the author fully realized the difficulties of using this metal.

I do wish I could make dentists comprehend that the making of metal plates is simplified to a remarkable extent by the use of Babbitt metal

dies and *oiled* sand. If any dentist will call upon me at any time, I shall be pleased to show him a large collection of models, comprehending almost everything that ever was seen in size, shape, and condition of alveolar border and palatal surface, and 90 per cent. continuous gum cases, without any vacuum cavities, and all made upon Babbitt metal dies; each plate when swaged fitting the model and the mouth; no adjusting with pliers and burnishers. If further evidence of the value of these dies is needed, I do not know what it can be.

I must emphasize, however, that what is sold as Babbitt metal will not always answer the dentist's purpose. There are many formulas, some in which *lead* is substituted for tin, in order to cheapen it, but ruins it for dental use.

If any one wishes to make it for himself, the following is the formula: Copper, one part; antimony, two parts; tin, eight parts; and remember to *melt in the order named*, otherwise the tin will oxydize badly.

Now *pure lead* cannot be used for the counter die because it melts at a higher temperature than the die. Reduce the melting temperature by adding tin. Make it five parts lead and one part tin.

I have instructed hundreds in these methods and have yet to hear of the first one who has returned to his "wallowing in the mire" of zinc dies.

Since writing the above, I have noticed in the *Journal* for June, an article on "Swaging Plates," taken from the *Texas Journal*, and it is so apt an illustration of the subject, I desire to call attention to it. Were it a necessity to follow such a plan, I should want to quit making metal plates.

The first thing the writer does is to take "three or four impressions"! Well, my patients think *one* impression is all they wish to endure, and it certainly is enough if that is a correct one.

Then he furnishes a formula for a composition for impressions that will enable him to cast his dies in them, instead of moulding sand. "on account of the difficulties of sand moulding." I wish I could have this writer in my laboratory for ten minutes only, and show him how the "difficulties of sand moulding" would vanish. Then comes the *zinc* die again, following up with a *zinc counter* for the *final* swaging. Did he ever think for a moment of the result of using both die and counter of the same metal, and especially of zinc? As the counter does not yield any more than the die, the gold, being softer than either, must give way at prominent points, and tear, or so near to it as to be very thin. But there is not the slightest necessity for resorting to such measures. The plate will come to its bearings with the ordinary counter. In the use of Babbitt metal dies, and the lead and tin counter, I never find it necessary to make even a second counter.—*Ohio Journal of Dental Science.*

CRITICISMS ON "WHAT NEXT?"

MONEY VS. BRAINS.

Editor Items:—Will you allow one of the poor class a little space in your journal to lift a voice against an article in the DENTAL ADVERTISER for July, entitled, "What Next?" by A. Dent, D. D. S., New York.

The Doctor states a few things we cannot accept. A man who has been so much more fortunate than the majority entering the profession as to have been "born with a silver spoon in his mouth," lowers himself by trying to exalt himself to the exclusion of the poor from the profession.

Money is a convenience, but it does not make brains, skill the hand, endow with judgment, or make the man. Gold does not put knowledge into the fool's head, place the artistic touch at the fingers' tips, improve hot temper, or make a Garfield of some poor, ignorant piece of humanity because he has cash. Money may make a politician, but not a man of wisdom and skill.

The Doctor says, "The applicant should be asked by the Dean of the Dental College: What are your prospects when you get through? Have you money enough to establish yourself in practice and live as a professional man should live? Are you able to take the position of a professional man after you have taken your degree? If he says, no; that he is poor, had to borrow the money with which to come to college, etc., he ought to be rejected." Is that kind, charitable, just toward the best young men knocking at the door of the dental college? God have mercy on the man that thinks money will buy him character, intellect, skilled hands and good judgment. Money may help and may hinder, but there is a bright possibility without it, if there is pluck, thoughtfulness, and perseverance. The best scholars and most successful men in our profession have been students without means, but possessing that which money cannot buy, *brains, grit and brawn*.

GIRARD, PA.

GEO. F. WOODBURY.

—*Items of Interest.*

"DEGREES SHOULD NOT BE CONFERRED ON POOR YOUNG MEN."

So says Dr. A. Dent, in the July number of the DENTAL ADVERTISER.

That would certainly shut out a large number, probably a majority, of those who graduate in medicine and dentistry. It would have shut out me; for while I was at college my wife had to keep the family and me, too; and I was not the only one of that class who was thankful for any odd chore to eke out our daily bread. I had to live on one dollar and a half a week during the first term, and on seventy-five cents a week during the second term. But I worked, and studied sixteen hours a day, and

was promoted to the third term class before the end of the second term. And *I guess* I graduated with as much honor as any rich young man in the school. Yes, and became established in successful practice as soon.

Who of our graduates, in either our literary or our professional colleges, attain the greatest success—the rich young men, or the poor? I would not disparage money—there are few young men, or old men, either, who would not accept a few thousand dollars, in any condition of life, especially to prepare for and to begin a professional life,—but there are more students spoiled by it than are spoiled by poverty; and there are less made brilliant and successful by it, than by the struggles of poverty. Why, we have seen many young men, flush with money, walk through college, and know much less than some who had to crawl through; and, when the door at the other end of the college hall was opened to these moneyed young men, that they might walk into the profession, I have seen poor young men crowd by them and wedge themselves into the good graces of the community while your rich young men were smoking their cigars and drinking beer.—*Items of Interest.*

GETTING AHEAD OF ST. PAUL.—Dr. J. N. Crouse, of Chicago, is a multifarious-officed gentleman. He is president of the Dental Protective Association, chairman of the executive committee, chairman of the committee on arrangements of the American Dental Association, and hustler in general for all sorts of miscellaneous business. He is an exceedingly shrewd and smooth-tempered man, one of that sort that is never ruffled, but always so dead in earnest that most folks think it but right to give him his own way without dispute; those who don't, generally get the worst of it, and that is precisely what happened to the Chicago, Milwaukee & St. Paul railway on the day when the members of the convention arrived. Dr. Crouse, in his capacity as chairman of the executive committee, had to make the railroad arrangements. When he arrived at the Milwaukee depot in Kansas City last Tuesday morning, it happened that, through some misunderstanding or failure of other roads to make connections, there were only thirty or forty dentists to board the special train that had been ordered, while the railroad officials had expected at least a hundred. It was useless to represent that there were more than a hundred extra men on the way who would take the regular train to Excelsior Springs. The officials refused point blank, and with what Dr. Crouse thought "most damnable iteration," to take the train out unless \$50 was paid in addition to the fares already represented by tickets. Finally Dr. Crouse consented, the money was paid over, a receipt taken, and the dentists' special train started. Just after crossing the river, Dr. Crouse noticed the conductor collecting fares from people who

had boarded the train at way stations. This was his opportunity. A sharp pull at the bell brought the train to a halt; it also brought the conductor to remonstrate. To that official's surprise he was taken in charge by the hustling doctor, who informed him that for the time being he must consider himself in the employ of the American Dental Association, producing the receipt for \$50 in support of his statement. The doctor then compelled the conductor to return all fares collected and to remove the passengers that had paid them from the train. These unfortunate wights were dumped in a corn field and the doctors' train moved triumphantly on to Excelsior Springs.—*Kansas City Journal*, August 7.

SHE timidly visited us at our office by appointment made by a fond and careful mother. How neat and pleasant she was to look at, with her spring suit and fresh complexion! We see health and perfection before us.* She takes a seat in our chair, and, being close now, we can observe every perfection and defect—of the former we find many, of the latter none. How neat and light her hair looks! You can see at a glance that the best of care is taken of it. Her eyes are clear and bright; her skin has that clean and healthy look that can only be obtained by thorough cleansing with friction. Her little hands are quite clean; the nails are nicely trimmed and manicured. We take the mouth mirror, and, after explaining to allay her fears, we place it in her mouth and gently pass it back as we look directly at the teeth. Horrors! Here is the flaw in our ideal of perfection; here is the soiled petal in this beautiful unfolding bud. Her teeth are somewhat decayed and covered with a scum of yellow and white viscid deposit—the remains of food—quite acid and giving out an unpleasant odor. She has come to us foul-mouthed. Had she been going to the dressmaker; she would have taken the precaution to have her under-linen bear inspection; or to the bootmaker, the stocking would have been perfect; or had she expected the visit of the corn-doctor, the foot would have been scrupulously clean. But to the dentist—a man of refinement—she comes to him without cleaning even the remains of the last meal from her teeth!—*The Southern Dental Journal*.

PUSH AND CONSTANCY of purpose may be considered as two expressions of the same idea, and yet they differ in many important particulars. A man may push in various ways and in different directions. Push frequently means only active work, while the other expression carries with it the idea of persistency. Constancy to purpose is a principle antecedent to successful pushing. A man may be of a pushing disposition and yet not persevere in any one effort long enough to win success.

Constancy of purpose, on the other hand, would give a quality to his push that would insure success. However important to the young man it may be to have push, it is equally important that he should be consistent in his plans and that he should stick to one thing long enough to allow it to develop. The child that planted a seed in the garden and dug it up every day to see if it was growing failed to gather a crop. He certainly was pushing, although his push was not properly directed. His brother, who patiently tended the garden spot, where he, too, had planted a seed, watered it and weeded it and allowed the plant to grow in its own natural way, obtained a reward, while the other lost everything he had. The action of the first child typified push of the kind that is not guided by intelligence and which has no constancy of purpose beyond what is patent to the eye. The course of the other boy exemplifies constancy both in the planting and in the careful attention to details necessary to the growth and maturity of the tree. Constancy to purpose in business is quite as important as push. Both contribute to success and together they accomplish wonders.—*The Office.*

IN REFERRING to the need for dental surgery among soldiers, we quoted, in a recent issue, the hypothetical question, "What would have happened if Wellington had had the toothache at Waterloo?" During the recent series of performances at Oberammergau, we read, this accident befell Josef Mayer, the player of Christus. Herr Mayer has devoted his life and has been specially trained for this one part, which he has brought well nigh to perfection. The mere study of his face is said to be of absorbing interest, and no doubt he is in a great measure the attraction which draws the many from far-off lands to this little Bavarian village to witness this play. Judge, then, the disappointment when they learnt Mayer was in bed with intolerable toothache and a face hideously swollen. Seeing that this kind of thing is among the preventable ills of life, public men especially, such as actors, singers, etc., certainly are unwise not to take the needed precautions. In these days of grandmotherly legislation one would almost wish these precautions should be rendered obligatory to all such, for their own sakes and the public's.—*British Journal of Dental Science.*

TALKING about distinguished dentals, reminds us that quite a number like to live in distinguished houses. Dr. Bonwill, of "electric mallet" fame, lives in what was General Grant's house in Philadelphia, the acquisition of which is thought by some of his fellow "Yanks" to be a proof of quite superfine "cuteness." In years gone by, Mr. Cronin

occupied the house in Holles Street in which Bryon once lived. Ill health has unfortunately compelled Mr. Cronin to give up practice, and the house has gone the way of all flesh, to make room for a draper's "extension of premises." Whilst old Mr. Merryweather did, and his successor, Mr. Dewes, now does, occupy the house in Brook street, where once upon a time Handel lived, at Liverpool, Messrs. Rowston & Matthews practiced in the house in which Mr. Gladstone was born. The bedroom being now an operating room, indeed one lady is said to have pointed out the actual position of the bed. Ladies are always fond of details; how they get hold of them goodness only knows.—*British Journal of Dental Science.*

DENTISTS' SOCIETIES.

SOUTHERN ILLINOIS DENTAL SOCIETY—Chester, October 21, 1890.

UNION DENTAL CONVENTION—Boston, Mass., October 28, 1890.

OHIO STATE DENTAL SOCIETY—Columbus, October 28, 1890.

UNION CONVENTION OF THE FIFTH, SIXTH, SEVENTH AND EIGHTH DISTRICT DENTAL SOCIETIES OF THE STATE OF NEW YORK—Rochester, October 28, 1890.

AMERICAN DENTAL ASSOCIATION.

The following officers were elected at Excelsior Springs, Mo., for 1891:

President, A. W. Harlan, of Illinois; First Vice-President, J. D. Patterson, of Missouri; Second Vice-President, H. B. Noble, of the District of Columbia; Secretary, George H. Cushing, of Illinois; Treasurer, A. H. Fuller, of Missouri; Corresponding Secretary, Frederick A. Levy, New Jersey. New members of the Executive Committee: L. D. Shepard, of Boston; C. N. Peirce, of Philadelphia, and H. A. Smith, of Cincinnati. Next place of meeting will be decided by the Committee of Arrangements of the Executive Committee.

NORTH CAROLINA STATE DENTAL SOCIETY.

The following resolutions were passed by a unanimous vote and with enthusiasm by the North Carolina Dental Society, at its recent session in Wilmington. In explanation of them it is necessary to say that the standard of dentistry has been greatly lowered in this State by the colleges in graduating men who have never had any previous office pupilage by a good preceptor. They do shoddy work, and few of them ever affiliate with our society; hence it is impossible to remedy the evil unless we go to its source. We can point with pride to our young men

who have served a pupilage of two years under our best dentists before going to college. They are adding strength and honor to the profession, and are real benefactors to the people. Hence these resolutions:

Whereas, We are desirous of raising the standard of dentistry in North Carolina and of increasing the individual proficiency of each member of the profession: and

Whereas, In our opinion, we cannot accomplish this while the colleges encourage young men to enter them from the business avocations of life without any previous office pupilage; and

Whereas, This is inimical to our Constitution and By-Laws; therefore,

Resolved, 1st. That we, the North Carolina Dental Society, offer our protest against any college that shall discourage office pupilage before entering college.

2d. That we will use our influence against any college or college professor who shall thus lower the standard of dentistry, or who shall knowingly receive a pupil from our State without two years' office pupilage, in accordance with our Constitution and By-Laws.

3d. That a copy of these resolutions be sent to some of the leading journals for publication.

H. C. HERRING,
President.

C. A. ROMINGER,
Secretary.

MISSOURI STATE DENTAL ASSOCIATION.

Twenty-sixth annual meeting held at Pertle Springs, Warrensburg, Mo., July 8, 9, 10, 11, 1890. President Dr. Henry Fisher called the meeting to order.

The committee on resolutions to the memory of Dr. A. Noland, presented the following, which were adopted by the Association:

To the Members of the Missouri State Dental Association:

Whereas, Death has removed from our ranks our beloved brother and co-laborer, Dr. A Noland, of Monroe City, on the 22d of January, 1890; and

Whereas, Dr. Noland was a faithful student, an honored laborer, and worked hard to raise the standard of our profession in this State; therefore,

Resolved, That this Association mourn with sorrow the loss sustained.

Resolved, That this Association hereby tender his bereaved family its heartfelt sympathies and condolence in this their sad bereavement, and

may that God, in whom he so implicitly trusted, speak peace to their sad hearts in their distress.

Resolved, That a copy of these resolutions be sent to the family of our deceased brother and to the dental journals for publication.

B. Q. STEVENS,
G. M. RISLEY,
JAMES L. LEAVEL,
Committee.

The committee to draft resolutions on the death of Dr. Judd presented the following, which were adopted :

Whereas, The recent death of Dr. Homer Judd brings to mind his activity and influence in the organization of this Association, and his subsequent labor in extending its usefulness, to the great benefit of the profession in this State ; and,

Whereas, His noble character, energy, and his literary attainments, entitle him to an exalted place on the scroll of deceased members ; therefore,

Resolved, That in the death of Dr. Judd this Association has lost an honored member, whose professional character and example we emulate, and whose memory we ever hold dear.

Resolved, That the heartfelt sympathy and condolence of this Association is tendered the family of our departed brother in their sad bereavement.

Resolved, That a copy of these resolutions be sent to the family and to the dental journals for publication.

W. H. EAMES,
C. W. SPALDING,
J. C. GOODRICH,
Committee.

Drs. Price, T. W. Reed and F. Swap were appointed a committee to draft suitable farewell resolutions to Dr. Spalding, and reported as follows :

Mr. President and Members of the Missouri State Dental Association :

GENTLEMEN—We, your committee appointed to draft resolutions expressive of the pleasure of this Association, afforded by the presence of Dr. C. W. Spalding, and of regret that he will soon sever his social connections with us, most respectfully submit the following resolutions :

Resolved, That with a full appreciation of Dr. Spalding's virtues as a gentleman, his high moral character as a man, his eminent qualifications and invaluable counsel as a professional brother, we tender to him our most sincere thanks for his presence at this meeting (probably the last

time we shall all meet him on this earth); we deeply regret that he should feel it necessary to sever his social connection with us.

Resolved, That we fully realize the fact that no one has done more than he to advance the standard of our profession and the best interests of this Association, which will ever, by us, be remembered and cherished with grateful hearts.

Resolved, That in his departure, he takes with him our most earnest wishes for his success, prosperity and happiness; and may kind Providence ever watch over, guide and shield him.

Resolved, That these resolutions be spread upon the records of this Association, a copy, properly engrossed, be presented to Dr. Spalding, and one sent to each of the dental journals for publication.

JAMES A. PRICE,

T. W. REED,

F. SWAP,

Committee.

The election of officers resulted as follows: President, Dr. J. F. McWilliams, Mexico; Vice-President, Dr. George L. Shepard, Sedalia; Second Vice-President, Dr. W. H. Buckley, Liberty; Recording Secretary, Dr. John G. Harper; Corresponding Secretary, Dr. William Conrad; Treasurer, Dr. James A. Price, Weston; Board of Censors—Drs. J. G. Hollingworth, W. L. Reed, Charles L. Hungerford; Committee on Ethics—Drs. N. H. Gaines, C. V. Huff, J. W. Aikin; Publication Committee—Drs. E. E. Shattuck, H. S. Lowry, W. E. Tucker; Law—James A. Price, Weston; Committee on New Appliances—Dr. J. M. Austin, St. Joseph; Executive Committee—Dr. William Conrad, Dr. Henry Fisher, and Dr. J. W. Whipple, St. Louis; Supervisor of Clinics—Dr. A. J. Prosser, St. Louis.

Next place of meeting, Louisiana, Mo., first Tuesday after July 4, 1891.

WILLIAM CONRAD,

321 NORTH GRAND AVENUE.

Corresponding Secretary.

POST-GRADUATE DENTAL ASSOCIATION.

The annual meeting of the Post-Graduate Dental Association of the United States was held at Chicago, June 25, 1890, and the following gentlemen were elected officers: President, George H. Cushing, M. D., D. D. S., Chicago, Ill.; Vice-President, Dr. R. H. Cool, Oakland, Cal.; Secretary and Treasurer, Lewis S. Tenney, D. D. S., Chicago, Ill.; Executive Committee, R. B. Tuller, D. D. S., Chicago, Ill., Dr. J. M. Gallehugh, Chenoa, Ill., Dr. G. W. Milton, Silvertown, Col.

This association is but a year old, but it starts out with good prospects of becoming a large and popular national organization, and has a grand

work before it. Its object, aside from the same general one of most dental societies, is to particularly encourage and stimulate post-graduate studies and the establishment of facilities for the same in dental colleges. It also contemplates, when its membership will admit of it, establishing a systematic course of home study, with benefits not unlike the Chautauqua Literary Society perhaps, but the plan is not yet sufficiently developed to admit of outlining at this time.

While the name "Post-Graduate" would imply an association of graduates only, the broad view is adopted of extending the work among all legal practitioners who may desire to join and co-operate, but practitioners not graduates are not eligible to membership until they have passed a post-graduate or practitioner's course in some reputable and recognized dental college.

Members of the profession who desire to become members of the Post-Graduate Association should correspond with the Secretary, Dr. Lewis S. Tenney, 96 State street, Chicago. The membership fee is \$1. Annual dues, payable in advance, \$1. Certificates of membership are issued when a member duly qualifies. Membership may be obtained through correspondence when evidence of eligibility is presented.



NATIONAL ASSOCIATION OF DENTAL FACULTIES.

The seventh annual session of the National Association of Dental Faculties was held at Excelsior Springs, Mo., commencing Monday, August 4, 1890. The following colleges were represented:

- Baltimore College of Dental Surgery*—M. Whilldin Foster.
- Boston Dental College*—Wm. Barker.
- Chicago College of Dental Surgery*—Truman W. Brophy.
- Kansas City Dental College*—J. D. Patterson.
- Missouri Dental College*—W. H. Eames.
- Ohio College of Dental Surgery*—H. A. Smith.
- Pennsylvania College of Dental Surgery*—C. N. Peirce.
- University of California, Dental Department*—C. L. Goddard.
- University of Iowa, Dental Department*—A. O. Hunt.
- University of Michigan, Dental Department*—J. Taft.
- University of Pennsylvania, Dental Department*—James Truman.
- Vanderbilt University, Dental Department*—D. R. Stubblefield.
- Louisville College of Dentistry*—A. Wilkes Smith.
- Indiana Dental College*—J. R. Clayton.
- Dental Department of Southern Medical College*—L. D. Carpenter.
- Dental Department of University of Tennessee*—R. B. Lees.
- University of Maryland, Dental Department*—John C. Uhler.
- Columbian University, Dental Department*—H. B. Noble.

On motion, Dr. J. D. Patterson, Kansas City, was elected Secretary *pro tem*.

The following resolution, offered by Dr. Hunt, was adopted :

Resolved, That in all colleges of this association, students to be graduated at the expiration of two years after admission must enter the school not later than twenty days after the opening of the regular session following this meeting.

The amendment to the constitution laid over from last year, providing for changing the name of the association to American Association of Dental Faculties, was lost.

Applications for membership laid over last year, under the rules, were taken up and the following were admitted: Royal College of Dental Surgeons of Ontario; College of Dentistry, Department of Medicine, University of Minnesota (represented by Dr. W. X. Sudduth); American College of Dental Surgery (represented by E. P. Hazen).

The following applications for membership were laid over under the rules: Dental Department of Howard University, Washington, D. C., and College of Dentistry, University of Denver.

The resolution offered by Dr. Patterson and laid over last year under the rules was taken up, amended, and adopted as follows :

Resolved, That after the session of 1890-91 a diploma from a reputable medical college shall entitle its holder to enter the second course in dental colleges in this association, but he may be excused from attendance upon lectures and examinations upon the following subjects: general anatomy, chemistry, physiology, and materia medica and therapeutics.

Dr. Marshall's amendment to the constitution, providing that in all matters not in conflict with Article V. of the constitution, a majority of the colleges belonging to this association shall constitute a quorum, was taken up and adopted.

The following resolution, offered by Dr. Hunt, was adopted :

Resolved, That we recommend that students take two full courses in studies of a general character, such as anatomy, physiology, chemistry, general principles of surgery, and materia medica and therapeutics, and three courses in those of a special dental character.

Dr. Goddard offered the following resolution, which was adopted :

Resolved, That final examination may be taken at the end of the second year in three general studies.

The following, offered by Dr. Truman last year and laid over under the rules, was adopted :

Recommended, That for a full annual course of lectures the minimum sum of college fees be \$100; that diploma fees be omitted, and an examination fee of not less than \$25 be substituted therefor and made non-returnable; that a matriculation fee of \$5 be charged annually. Special-course fees to be \$10 for each branch taken, and \$5 matriculation fee.

The following officers were elected for the coming year: L. D. Carpenter, Atlanta, Ga., President; W. H. Eames, St. Louis, Mo., Vice-President; J. D. Patterson, Kansas City, Mo., Secretary; H. A. Smith, Cincinnati, O., Treasurer; J. Taft, Cincinnati, O., Truman W. Brophy, Chicago, and A. O. Hunt, Iowa City, Ia., Executive Committee.

The following committees were appointed: James Truman, Philadelphia; Frank Abbott, New York; and John S. Marshall, Chicago, *ad interim* committee; J. A. Follett, Boston; D. R. Stubblefield, Nashville, Tenn.; A. Wilkes Smith, Richmond, Ky., C. L. Goddard, San Francisco, Cal., Committee on Schools.

Adjourned to meet on Saturday, August 1, 1891, at 10 o'clock A. M., at the place appointed for the next meeting of the American Dental Association.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The ninth annual meeting of the National Association of Dental Examiners was held at Excelsior Springs, Mo., commencing Monday, August 4, 1890, Dr. T. S. Waters in the Chair.

The following State boards were represented:

Colorado — Dr. P. T. Smith.

Illinois — Dr. C. R. E. Koch.

Iowa — Drs. S. A. Garber, E. E. Hughes, and E. D. Brower.

Pennsylvania — Dr. Louis Jack.

Maryland — Dr. T. S. Waters.

Kansas — Drs. L. C. Wasson and A. M. Callahan.

Ohio — Drs. J. Taft and H. A. Smith.

Minnesota — Dr. J. H. Martindale.

During the sessions the Board of Registration in Dentistry for the State of Rhode Island and Providence Plantations, represented by Dr. Wm. P. Church, was elected to membership.

In the absence of the Secretary, Dr. F. A. Levy, Dr. J. H. Martindale of Minnesota, was elected secretary *pro tem*.

After discussion, the following resolution, offered by Dr. Jack and amended by Dr. Koch, was adopted on motion of Dr. Taft:

Resolved, That this body recommends the various examining boards under no circumstances to grant temporary licenses to dental students at any period of their course of instruction, whenever their State laws will permit them so to do.

Drs. Jack, Garber, and P. T. Smith were appointed a committee to formulate the principles which this association would recommend should be incorporated in the State laws. This committee subsequently presented a report which, as amended and adopted, recommended the

following principles for incorporation in laws for the regulation of dental practice or for the guidance of those framing them :

1. The creation of boards of examiners in each State.
2. The boards to be officially created by the constituted appointing power of the various States, the appointees to be selected from a number of names presented by the representative State societies ; each State society at its annual meeting placing in nomination not more than two names for each appointment to be made.
3. Recognizing five years' actual practice at the time of the passage of the law as qualifying for the continuance of practice.
4. Empowering the examining boards to examine and grant certificates to non-graduates, provided the candidates present satisfactory evidence of having had at least five calendar years of instruction.
5. These and all other examinations to be both oral and written, and candidates to be also subjected to tests of practical skill.
6. Empowering the boards to examine graduates in dentistry.
7. Prohibiting medical graduates without special qualifications practicing dentistry.
8. Requiring medical graduates to have their special qualifications determined by the same tests as other non-graduates in dentistry (see No. 5).
9. Making failure to pass the required examination in any one branch sufficient cause for refusal to grant the certificate.
10. Making failure in the practical tests in either of the two general departments of dentistry work, disqualification.
11. Expressing the opinion that examinations for the special degree in dentistry should be conducted by a board of examiners established by law in each State, instead of by faculties as at present ; and the belief that the power to grant degrees must at length become vested in boards created for the purpose.
12. Conferring on State boards the power to revoke, for cause, a certificate of qualification previously granted.

The secretary was directed to call the attention of the American Dental Association to the fact that a case involving the constitutionality of the law regulating the practice of dentistry in New Hampshire is now pending in the Supreme Court of the United States, and asking them to see to it that it does not go by default.

Dr. Koch, from the committee on dental colleges, reported the following schools the diplomas of which this association recommends that the State boards indorse :

American College of Dental Surgery, Chicago, Ill.

Baltimore College of Dental Surgery, Baltimore, Md.

Boston Dental College, Boston, Mass.

Chicago College of Dental Surgery, Chicago, Ill.

College of Dentistry, Department of Medicine, University of Minnesota, Minneapolis, Minn.

Dental Department, Columbian University, Washington, D. C.

Dental Department of Northwestern University, Chicago, Ill., (Now University Dental College.)

Dental Department of Southern Medical College, Atlanta, Ga.

Dental Department, University of Tennessee, Nashville, Tenn.

Harvard University, Dental Department, Cambridge, Mass.

Indiana Dental College, Indianapolis, Ind.

Kansas City Dental College, Kansas City, Mo.

Louisville College of Dentistry, Louisville, Ky.

Minnesota Hospital College, Dental Department, Minneapolis, Minn. (Defunct.)

Missouri Dental College, St. Louis, Mo.

New York College of Dentistry, New York, N. Y.

Ohio College of Dental Surgery, Cincinnati, O.

Pennsylvania College of Dental Surgery, Philadelphia, Pa.

Philadelphia Dental College, Philadelphia, Pa.

School of Dentistry of Meharry Medical Department of Central Tennessee College, Nashville, Tenn.

St. Paul Medical College, Dental Department, St. Paul, Minn. (Defunct.)

University of California, Dental Department, San Francisco, Cal.

Northwestern College of Dental Surgery, Chicago, Ill. (The diplomas of this college are discredited after 1889.)

State University of Iowa, Dental Department, Iowa City, Ia.

University of Maryland, Dental Department, Baltimore, Md.

University of Michigan, Dental Department, Ann Arbor, Mich.

University of Pennsylvania, Dental Department, Philadelphia, Pa.

Vanderbilt University, Dental Department, Nashville, Tenn.

The following officers were elected for the ensuing year: C. R. E. Koch, Chicago, Ill., President; L. C. Wasson, Topeka, Kan., Vice-President; J. H. Martindale, Minneapolis, Minn., Secretary and Treasurer. The president appointed as the Committee on Dental Colleges, Drs. Louis Jack, T. S. Waters, E. E. Hughes, W. P. Church, and J. H. Martindale.

On motion, the following committee was appointed to consider the advisability of holding the meetings at some other time and place than the annual meetings of the American Dental Association, with discretionary power in the matter: Drs. J. Taft, F. A. Levy, and S. A. Garber.

Adjourned to meet at the call of the president.

THE DENTAL ADVERTISER.

CONDUCTED BY THEO. G. LEWIS, D. D. S.

BUFFALO, N. Y., OCTOBER, 1890.

WORKING A CHURCH.

An exchange says: "The man who works a church that he may gratify his own personal ends, may be said to belong to the class of religionists who 'wear the livery of heaven to serve the devil in.'"

The above must certainly apply to professions other than that of the "high-toned," elevated and honorable profession of dentistry. We do not believe any dentist would "work a church" for his own personal emolument; at least we have heard dentists deny the insinuation, and have believed the denial. Of course, a dentist might be requested to deliver a lecture before a church congregation, or he might incidentally suggest that a lecture by him would be productive of good results—morally and religiously. Yet the lecture would be solely for the benefit of the listeners, as the innate modesty of our exemplary dentist-lecturer would revolt against church-working for personal gain or notoriety. No, dentists do not belong to that "class of religionists."

CLEAN VS. UNCLEAN.

John Allen gave to dentistry the most cleanly and beautiful denture ever put into the human mouth, and he has given to humanity and the world a character and life equally as clean and beautiful.—*Southern Dental Journal*.

How about the characters of the dentists who from about 1851 have infringed the patents of Dr. Allen, and appropriated to their own use the profits of the "most cleanly and beautiful dentures?" It will astonish the filchers to know that the venerable Dr. John Allen, of New York, has been impoverished by their failure to do him pecuniary justice. Shall we call them unclean, in contrast to Dr. Allen's clean and beautiful life?

MRS. EMMA EAMES CHASE, of St. Louis, and Jessie M. Ritchy, of Des Moines, Iowa, were admitted to membership in the American Dental Association, at the recent meeting at Excelsior Springs, Mo.

THE *Medical Mirror* says, with a great deal of truth, that "There was never a more absurd paragraph in any set of rules adopted for the government of any calling on earth than the provision of the Code of Ethics which forbids a medical man receiving a reward for his inventive ability."

PROFESSOR W. X. SUDDUTH, of Philadelphia, editor and business manager of the *International Dental Journal*, has severed his connection with that journal and has been appointed Professor of Dental Pathology and Oral Surgery, and Secretary of the Dental Faculty of the University of Minnesota. Professor Sudduth has held teaching positions in the University of Iowa and in the Medico-Chirurgical College of Philadelphia, but has resigned both positions. Dr. James Truman has been appointed editor of the *International Dental Journal*.

ELLIOTT'S SUSPENSION ENGINE.—Therapeutics become the means to the end when combating disease, and in the department of mechanics every appliance which will help to direct this energy to the purpose sought should be available; and, perhaps, the most appreciable instrument of modern practice is the dental engine. Here I desire to make a point which, it seems to me, has been grossly overlooked, and you will excuse me for the reference. Seventeen years ago I had the pleasure of introducing to the profession an engine known as the Suspension. To-day, I am able to declare—as proven by those who have had it in constant use since that time—that it fully sustains the claim then made for it. I apprehend that its merits are not fully appreciated, for the reason that it has not been presented to the profession with as much push as has other inventions. With an independent motive-power—water or electricity—it becomes the *ne plus ultra* of all implements. There is in it a vast latitude and freedom of motion; no back lash; no slack bands; nothing to encumber floor-room; no necessity for a great amount of machinery to adjust and keep in repair. In referring to this instrument I have no interest, other than to remind you of the best of all.—*Dr. W. S. Elliott, in Items of Interest.*

We heartily endorse the above, and know from years of actual use that the Suspension Engine is the best and most practical ever invented.

THOMAS FLETCHER, F. C. S., of Warrington, England, who long since gave up the practice of dentistry, still retains his interest in the profession, and has recently strengthened that interest by presenting to the Manchester Dental School prizes to the value of £20, to be competed for annually, for five years. The prizes are to be awarded for proficiency in operative dentistry.

ANNIE FELTON REYNOLDS has the honor of being the first woman graduate from a Massachusetts dental college. She received her degree from the Boston Dental College, June 19, 1890. Either Miss Reynolds must have been unusually bright, or the male students unusually dull, as she received first prize for senior honors.

THOSE interested in music should send to the Utica Conservatory of Music, Utica, N. Y., for a handsome pamphlet containing portraits of the faculty and a concise statement of the advantages of the conservatory method of teaching music. Not only music, but fencing, dancing and languages are embraced in the curriculum. The record of the Utica Conservatory has been without a parallel; from the first it was a popular success. This was owing mainly to the vast amount of business energy thrown into the organization by the able and talented director, Professor Louis Lombard. The director and many of the faculty are personally known to the writer to be not only thorough musicians, but, what is better, competent and painstaking teachers. We can with the utmost surety recommend the Utica Conservatory to pupils desiring correct and thorough instruction in music and languages.

ADVANTAGE is being taken of the Eiffel Tower to obtain high pressure through a manometric tube (the height of the tower) containing mercury. M. Cailletet proposes to utilize the enormous pressure—about 400 atmospheres, so it is said—for his researches on the liquefaction of gases, and interesting results may be looked for,—very interesting, no doubt, with a pressure of nearly 6,000 lbs.

THE FOLLOWING fourteen societies will hold a union meeting at Berkeley Hall, Boston, Mass., October 28 to 31: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut State Societies. American Academy of Dental Science, Connecticut Valley Dental Society, Harvard Odontological Society, Harvard Dental Alumni Association, Boston Dental College Alumni Association, Boston Society of Dental Improvement, Worcester Dental Society, New England Dental Society. All persons having articles, instruments or materials of use in dentistry are cordially invited to exhibit the same.

THE third edition of Fletcher's Dental Metallurgy is in preparation. The two previous editions of the work were sold within a few weeks of publication, and the frequent inquiries have induced the author to revise and reprint it.

A VERY interesting little pamphlet, by George W. Childs, "Recollections of General Grant," brings to notice for the first time some of the peculiarities and virtues of that famous warrior and president. Perhaps Mr. Childs was more closely associated with General Grant than any other man, and his record of that association is of more than ordinary value on that account. J. B. Lippincott & Co. have recently published another work, "Recollections by George W. Childs," to which are added accounts of the various gifts of Mr. Childs. *Harper's Weekly*, in noticing Mr. Childs' book, among other things says: "To be universally known as constantly doing good, as a rich man who holds his riches in trust for the benefit of others, as the effective friend of every humane enterprise, as the proprietor of one of the great and most prosperous newspapers in the country, conducted strictly upon the principles of courtesy and good sense which regulate the intercourse of gentlemen, and as the friend of the most distinguished persons of his time, is the happy fortune of Mr. George W. Childs, of Philadelphia. The recollections of such a life are necessarily full of interest. They are especially pleasant, because they do not associate narrowness and hardness and meanness and selfish intrigue with success, but, on the contrary, the open hand and the open heart."

DR. E. A. BOGUE will be pleased to receive his patients after September 1, 1890, at 73 Boulevard Haussmann, Paris.

ADVERTISING is being reduced to a science, but the precise connection between ancient history and beer is left to the advertising genius of the Pabst Brewing Co., of Milwaukee, to explain. The above named company has issued a beautifully printed and illustrated pamphlet entitled "A Story: Damon and Pythias," and dedicated to the Knights of Pythias of the world. The pamphlet can be had on application, and is really worth sending for and reading.

AN EXCELLENT portrait of the venerable and much respected Dr. W. H. Morgan, of Nashville, Tenn., is published in the July number of the *Dental Headlight*. The *Headlight* truly says: "There is probably no man in the profession more widely or more favorably known. That spirit which led him to educate and fit himself for a learned profession, has carried him to its front rank, and whether it be a practical or scientific question under consideration, he is listened to as one capable to instruct and worthy a careful hearing. His conviction of what is right is his only guide of action." Dr. Morgan has now practically retired from active practice, although he is still Dean of the Department of Dentistry in Vanderbilt University, at Nashville, Tenn.

THE August number of the *Dental Mirror* contains the following startling announcement, in bold-faced type: "There is a small cloud on the horizon of dental journalism, from which we predict a squall! Watch!!"

AN EXCHANGE says: "When you cultivate the faculty of associating names and faces it will prove a decided benefit to your trade." The heedless and thoughtless, and those in the habit of asking self-evident questions, should heed the above maxim.

THE FIRST VOLUME of Dr. J. N. Farrar's work on Irregularities will be issued some time in November, followed by Vol. II. and III. as soon as practicable. The three volumes will contain over two thousand illustrations.

THE NEW Chemical Laboratory of Cornell University, at Ithaca, N. Y., with a complete equipment, will be ready for the admission of students in October, 1890. Courses are offered in theoretical, organic, and applied chemistry, analysis of foods, ores, and commercial products, assaying, etc. For circulars giving full information, address Treasurer Cornell University, Ithaca, N. Y.

DR. THEO. F. CHUPEIN is writing some sensible and practical articles on Operative Dentistry for *The Dental Office and Laboratory*. We presume they will be compiled and published in book form, in which case they will form a valuable addition to dental literature.

DENTISTS WHO OBJECT to using gum sections should try two new moulds, Nos. 213 and 214, S. S. White Dental Manufacturing Co.'s make, and realize that gum sections can be made to present a natural appearance.

CORRESPONDENCE.

WHITE RIVER JUNCTION, Vt., July 9, 1890.

Editor DENTAL ADVERTISER:

DEAR SIR: — In your July number, you gave the text of the decision regarding the dental law of the State of New Hampshire, in the case of the *State vs. Hinman*, and further on, quote the decision of the court of the State of Minnesota, which was exactly the reverse of the New Hampshire decision, and then stated that the Minnesota law did not differ essentially from the New Hampshire law.

Allow me to correct the matter. The two laws are as totally unlike in the one point which involves their constitutionality as black and white.

The New Hampshire law, Section 8, says: "The provisions of the preceding sections shall not apply to persons who have resided and practiced their profession in the town or city of their present residence during all the time since January 1, 1875." And it was on this section that the law was declared unconstitutional. Notice in connection with this, the supposed case cited by the court, of the two persons engaged in the practice of dentistry in the village of Penacook. Under section 8, one could, and the other could not, obtain a license without fee, or in the words of the court, "The constitutional objections to the statute are that it imposes the burden of a license fee upon certain persons and exempts others of the same class, under similar circumstances and conditions." Now, the Minnesota State law, Section 4, grants to every person engaged in the practice of dentistry in the State, at the time of the passage of the law, a license upon the payment of a fee of \$1.00.

It is easily to be seen that the New Hampshire law did, and the Minnesota law does not, discriminate between persons "of the same class and profession, under similar circumstances and conditions."

Very respectfully,

G. W. HOFFMAN,

President Vermont State Dental Society.

Editor DENTAL ADVERTISER:

DEAR SIR:—In writing you that the plates made now fit better than heretofore, I mean since using the new process. It seems almost impossible to get them out of the mouth. High, low, broad, or narrow V-shaped arches, it is all the same. I fitted in a set of temporary teeth (Crescent teeth, and Walker's Granular Gum facing rubber) yesterday; depth of arch, five-sixths of an inch, width between processes, one and one-fourth inches. The young lady could not remove them, and, in fact, I had to work to get them out. Now, I merely mention this particular case, as you are aware that generally we have more or less difficulty in securing a well-adapted plate. The rubber seems to be somewhat tougher, and finishes up beautifully.

Now, it may be that this is imagination. I am not able to explain the whys and wherefores, but if you have a case to make, for actual wear, send it on, properly articulated, and I will try and demonstrate it to your satisfaction. Mechanical dentistry is a real pleasure to me now. I do not dread difficult cases as formerly.

C.

CALIFORNIA, Mo.

[The above letter refers to the new process of vulcanization, as explained in an article by Dr. Snow, in this number of DENTAL ADVERTISER.]

DIED.

In New York, N. Y., May 31, 1890, Clinton Atkinson, M. D., aged 48 years.

In Cleveland, Ohio, June 25, 1890, Dr. John Stephan, aged 42 years.

In Wyoming, Ohio, July 8, 1890, Dr. Charles Bonsall, aged 88 years.

In New York, N. Y., August 20, 1890, Dr. William Augustus Bronson, in the seventy-fourth year of his age.

BOOK NOTICES.

No. 3.—**ESSENTIALS OF ANATOMY.** Including Visceral Anatomy. Prepared especially for students of medicine. Based upon the last edition of Gray. By Charles B. Nancrede, M. D., Senior Surgeon to Episcopal Hospital; Surgeon to Jefferson College Hospital; formerly Lecturer on Osteology, etc., in Medical University of Pa.; and Lecturer on Surgery in Dartmouth Medical College, etc. Third edition, revised and enlarged. Thirty full-page lithographic plates in colors, and 180 fine wood cuts. Philadelphia: W. B. Saunders, 1890. Price, \$2.00. For sale by Buffalo Dental Manufacturing Co.

Students' manuals and handbooks have been published in late years on almost every branch of medicine, surgery, and dentistry. Some are good, some fair, while others seem to have been compiled to publishers' orders. For conciseness and clearness of description, the "Essentials of Anatomy" excel any similar work that has ever come under our notice; and this is saying a great deal. Taking Gray's Anatomy as a basis, the author has performed his work in a remarkably creditable manner. The work is well illustrated, and references plain. Not the least valuable portion is the thirty full-page colored illustrations, with accompanying explanations. How familiar they look—especially those from MacLise and Gray; how they remind one of the days of student life, minus the dissecting room odor! After all, ocular impressions are the easiest recalled, and dentists cannot go amiss in providing themselves with this handy volume to refresh their memories.

THE OLD HOMESTEAD is the name of a southern literary, fashion and domestic monthly, published at Savannah, Ga. It has complete and serial stories, poems and essays by some of the most brilliant southern writers, while its fashion department, handsomely illustrated, is one of the best in the country. *The Old Homestead* is the literary magazine of the South, and its freedom from erratic and sensational matter makes it a welcome visitor in the most refined homes. Davis Bros., Publishers, Savannah.

BOOKS RECEIVED.

REVUE INTERNATIONALE DE BIBLIOGRAPHIC, MÉDICALE, PHARMACEUTIQUE ET VÉTÉRINAIRE. Dirigé par Le Docteur Jules Rouvier, Professeur de Clinique Obstétricale et Gynécologique à la Faculté Française de Médecine de Beyrouth, (Syria), June 1890.

THE THERAPEUTICAL APPLICATIONS OF PEROXIDE OF HYDROGEN (MEDICINAL) AND GLYCOZONE. By Charles Marchand, Chemist.—This pamphlet will be sent to any one making application to No. 10 West 4th St., New York.

IDENTITÉ DE LA DENGUE ET DE LA GRIPPE-INFLUENZA, par Le Docteur Jules Rouvier, Professeur de Clinique Obstétricale et Gynécologique à la Faculté Française de Médecine de Beyrouth (Syria), etc., etc.

WHAT IS THE PRESENT MEDICO-LEGAL STATUS OF THE ABDOMINAL SURGEON? By William Warren Potter, M. D., Buffalo, N. Y.

DENTAL PATENTS.

ISSUED FOR THE QUARTER PRECEDING THE DATE OF THIS JOURNAL.

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- 430,639—June 24, 1890.—ARTIFICIAL DENTURE.—Nelson J. Goodwin, Hartford, Conn.
 430,683—June 24, 1890.—FOLDING SCREEN.—George L. Primrose, Syracuse, N. Y.
 430,909—June 24, 1890.—TOOTH BRUSH.—Thomas G. Wonderly, Galena, Ill.
 431,020—June 24, 1890.—DENTAL ENGINE MOTIVE GEAR.—Peter Brown, Montreal, Canada.
 431,713—July 8, 1890.—DENTAL POLISHING PENCIL.—Kensel C. Whaley, Pomeroy, O.
 431,849—July 8, 1890.—DENTAL ARTICULATOR.—John W. Moffitt, Philadelphia, Pa.
 432,737—July 22, 1890.—ARTIFICIAL TOOTH.—Charles H. Land, Detroit, Mich.
 432,909—July 22, 1890.—DENTAL MOULD.—Louis F. Seeger, Jr., Ahnapee, Wis.
 433,185—July 29, 1890.—DENTAL VULCANIZER.—James E. Quinn, Boston, Mass.
 433,592—August 5, 1890.—COMBINED DENTAL MALLET AND PLYERS.—Arthur O. Covey, Council Grove, Kan.
 434,317—August 12, 1890.—ARTIFICIAL TEETH.—Emory A. Bryant, Aspen, Col.
 434,697—August 19, 1890.—HAND PIECE PULLEY HEAD FOR DENTAL ENGINES.—Arthur W. Browne, Prince's Bay, N. Y.
 434,698—August 19, 1890.—ATTACHMENT FOR DENTAL ENGINE HAND-PIECES.—Arthur W. Browne, Prince's Bay, N. Y.
 434,737—August 19, 1890.—DENTISTS' MIXING SLAB.—Levi Teal, Philadelphia, Pa.
 434,952—August 26, 1890.—DENTAL ENGINE HAND-PIECE.—Cassius M. Richmond, New York, N. Y.
 435,138—August 26, 1890.—ANGLE ATTACHMENT FOR DENTAL ENGINES.—Frank Fleury and Albert G. Goodman, Chicago, Ill.
 435,350—August 26, 1890.—TOOTH PICK.—Heinrich C. F. Oehlecker, Hamburg, Germany.
 11,105—August 26, 1890.—VULCANIZER.—Charles A. Davis, Rochester, N. Y. (Re-issue.)
 436,009—September 9, 1890.—LOCKING DEVICE FOR THE FLASKS OF DENTAL VULCANIZERS.—Arthur H. Stoddard, Boston, Mass.
 436,210—September 9, 1890.—DENTAL FORCEPS.—Benjamin E. Burger, Merrill, Wis.
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THE OCTOBER NUMBER OF
 THE DENTAL ADVERTISER
 COMPLETES THE
 TWENTY-FIRST YEAR
 OF ITS PUBLICATION.

OUR SUBSCRIPTION LIST FOR 1890 WAS VERY LARGE. WILL
 THE READER HELP TO MAKE THE LIST FOR 1891 LARGER?

T H E
DENTAL ADVERTISER

A QUARTERLY JOURNAL, DEVOTED TO
THE ADVANCEMENT OF THE
DENTAL PROFESSION.

CONDUCTED BY
THEO. G. LEWIS, D. D. S.

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THE DENTAL ADVERTISER.

VOL. XXII.—BUFFALO, N. Y., JANUARY, 1891.—No. 1.

PHAGOCYTOSIS.*

BY DR. FRANK W. LOW, BUFFALO, N. Y.

To Metschnikoff, the eminent Russian biologist, is attributed the coinage of the terms *Phagocyte* and *Phagocytosis*. Their derivation is from the Greek *φαγω*, I eat.

Apt terminology, as will be seen from the subjoined concise definition quoted from Osler:†

“There are in the body groups of tissues possessing cells, which either normally display amœboid changes, or are capable, under certain conditions, of assuming them. By amœboid properties is meant, not only the capability of free movement, but the possession of a power which enables a cell to take foreign particles into its interior. These cells in the adult body are met with—

- (1) As colorless corpuscles of blood and mucus;
- (2) The connective tissue cells;
- (3) Cells of the spleen, bone, marrow and lymph glands;
- (4) The vascular and lymphatic endothelium;
- (5) The alveolar epithelium of the lungs.

All of these cells possess, in a greater or less degree, the power of taking solid particles into their interior, virtually, as one might say, *of eating them*.”

As physiological factors in the normal working of the healthy body, it is by the activity of these amœboid cells that the gills and the tail of the

* Read at Joint Convention at Rochester, October 29, 1890.

† The *Medical Record*, New York, Vol. 35, No. 15.

tadpole are removed, and under the microscope we are told that one can see, embedded in the protoplasm of their little bodies, bits of muscle and small shreds of nerve, as long as the process of atrophy is going on in the caudal appendage of this metamorphosis.

To us, as dentists, the most interesting study is the essential role played by the phagocyte in the protection of the organism from the invasion of the pyogenic microbe.

Life is surrounded by such environments that, but for the phagocyte, we should be "all dead men." Our bodies, to these warriors of the blood, are as a realm or kingdom, for the defense of which, some ever stand sentinel, while all, with marvelous promptitude, form into line of battle whenever invasion is threatened from without. Between them and the pyogenic microbe is a war to the knife, a battle without quarter which has never ceased to rage since Adam first had a gumboil.

In the existence of the phagocyte we have an intelligent explanation of the successful outcome of much of the careless immediate root work which undoubtedly is being done the whole country over. These operations, indeed, furnish as conclusive corroborative evidence to prove the truth of the Metschnikoff theory, as do any of the so carefully conducted scientific experiments undertaken.

Where teeth, on the one hand, remain in the jaw after treatment, they shortly become, apparently, *perfectly* healthy; (a condition that could not obtain so long as pyogenic micro-organisms were present in the tissues); on the other hand, those having been first extracted and *then* experimentally treated, have almost, if not quite, invariably developed bacteria cultures. Having in mind these facts, but one inference is rationally to be drawn, namely: That the phagocyte cell acts as the factor of elimination, devouring all bacteria, both in the pulp canal and in the tissue about the apex of the root.

If this be nature's process of repair, one can readily comprehend how teeth treated only with dry, hot air and such mechanical cleansing as is advocated by Craven, Cunningham, and others of that school, do, after all, speedily assume healthy relations with surrounding tissues. Dr. Miller has proven recently* beyond all doubt that the agents now generally employed to bring about the ideal "perfectly aseptic condition of tooth roots" are none of them equal to the emergency.

He told the writer, at the time of his recent visit to this country, that an 18 per cent. alcoholic solution of mercury bichloride should be used, (in a certain experiment, described in a subsequent paragraph of this same article,) for the reason that any less concentrated solution could not be depended upon to sterilize the tissues.

However improbable it may seem at first thought that the phagocyte may penetrate the pulp canal, or even the dentinal tubuli, through the

* *Dental Cosmos*, August, 1890.

apical foramen of the tooth, it has its parallel in an experiment performed by Hess,* who, in order to prove that these cells were really aggressive in attacking pyogenic organisms, caused to be inserted under the skin of a dog a small glass capsule with only a minute opening in it at one end. Into this capsule he had previously injected a quantity of agar agar, infected with staphylococci. The capsule, having been allowed to remain for a sufficient time in the tissues of the canine, was removed, and upon examination the agar agar was found to contain numberless phagocytes, each engorged with its fill of cocci.

Now, if they will migrate into the minute orifice of a glass capsule, what is to prevent them from attacking in like manner the bacteria of the pulp canal? This possibility seems also susceptible of demonstration from the fact that we all have repeatedly opened pulp chambers of teeth suspected of being dead, and have found—nothing—an empty house; the process of atrophy probably having taken place precisely as it does in the tail of the tadpole.

Bearing upon this subject, the writer has recently made a series of experiments, † which he deems of sufficient interest to be related:

A superior molar, which was known to have putrescent pulp canals, having been extracted, and passed through a Bunsen flame to singe or burn off all superficial cultures; was then encased securely in sterilized rubber dam, from the apex up to and around the neck of the tooth, after which the pulp chamber and canals were carefully treated by the immediate root process. Following this—with sterilized excising forceps—the fangs were split open and immersed in agar agar. The result was

* Virchow's Archiv., Bd. cix.

† The writer is indebted to Dr. W. H. Bergtold, of Buffalo, for valuable assistance in conducting the bacteriological experiments, which were made in the laboratory of Dr. Roswell Park. Dr. Bergtold's report is subjoined:

Experiment No. 108.—Inoculated agar tube with pericemental membrane from an ulcerated and carious tooth (molar?).—*No growth.*

Experiment No. 108, A.—Superior molar, fangs snipped off with sterilized forceps, and split longitudinally.—Anterior fang (Exp. 108, B.) gave a copious growth of staphylococcus pyogenes citreus.

Buccal (part) fang (Exp. 108, B).—*No growth.*

Palatine fang (Exp. 108, C).—*No growth.*

Experiment 183, A.—Tooth in agar tube, given to me by Dr. Low; root, supposed to contain bacteria, was treated with peroxide alone, and sealed; extracted after two weeks, the neighboring mucosa having been previously sterilized with bichloride, the tooth then dropped into agar tube.—*No growth.*

Experiment 183, B.—Tooth with exposed pulp treated with pure carbolic acid, sealed, extracted in two hours, passed through flame, split, and dropped into agar tube.—*No growth.*

It is needless to remind you that in all of the above experiments every possible precaution was taken to insure against accidental contamination.—*W. H. Bergtold, M. D.*

that the palatal and posterior buccal roots developed no cultures, but the anterior, as might be expected (having so small and so tortuous a canal that it could not be thoroughly treated), proceeded almost at once to yield a colony of cocci.

It may also properly be mentioned that this experiment was not made to prove a theory already formulated, but that it was undertaken in the hope of proving that immediate root work *did* perfectly asepticize pulp canals.

The second experiment was made upon a tooth having a *live* nerve, and consisted in treating the exposed cornua of the inflamed pulp with a dressing containing carbolic acid; after capping, the cavity of decay was sealed against ingress of food by a plug of varnished spunk, and the tooth was extracted the second day following. Some days after, this tooth was superficially scorched, and having been split, the pulp thereby being exposed, was immersed in agar agar. It failed to develop bacteria, however.

Now, the question is: Did the superficial carbolized dressing destroy all bacteria throughout the entire body of the pulp? Was it the work of the phagocyte during the two days intervening between the treatment and extraction? Or do these amœboid cells prevent the bacteria from encroachment beyond the mere point of exposure until such time as strangulation at the apical foramen prevents further maintenance of the capillary circulation?

The writer would venture the opinion that when stasis is complete, the battle goes against the phagocyte, because reinforcements can no longer come to the rescue, while the bacteria proliferate without further hindrance, receiving new colonies with the impactment of each morsel of decomposing vegetable or animal matter that lodges in the cavity of decay.

The third and most recent of these experiments seems most significant as well. A superior lateral incisor—no tooth in the human jaw has proven more obstinate formerly to the continuous dressing treatment—was chosen for this last trial. Patient—female, age 45—submitted to treatment by immediate root process on September 17th of the present year. The dam was adjusted, peroxide injected, canal filled with gutta percha cone and the broken-down crown with oxy-phosphate cement, the dam removed and patient dismissed in a trifle less than half an hour.

No solution of bichloride was presented in the treatment of this case, and yet, notwithstanding the hasty and careless manner of manipulation, in less than two weeks a tooth having an incipient blind abscess at the start had assumed healthy relations with the surrounding tissues.

At the expiration of two weeks a napkin was folded under the lip and about the palatal aspect of the tooth, so that saliva for the time being was excluded. The crown of the tooth was then bathed in an alcoholic solution (18 per cent.) of bichloride of mercury, after which it was thoroughly

dried with sterilized absorbent cotton, and with sterilized forceps was extracted, then instantly immersed in a tube of agar agar, where, after three weeks' coaxing in a warming closet, it has developed no trace of bacteria whatever.

In view of the experiment first above related as having been performed by the writer, and the recent proving by Miller that the pulp of a tooth having been first subjected to a thorough bath in full-strength peroxide of hydrogen will still develop colonies of bacteria in agar agar, is it not fair to suppose that had *this* tooth, at the time of the immediate root treatment, been at once extracted and immersed in the agar tube, we should have demonstrated the presence of bacteria at its apex, in spite of the faulty treatment just described?

This is the experiment that the writer intends next to make. The difficulty is, that patients are not readily to be found who are willing to submit, for the sake of science, to have their teeth experimented upon. With the hope, however, that an opportunity may eventually be given to duplicate experiments already made, and to make others in this line, of even greater interest, we are compelled reluctantly to "rest our case."

In the meantime, the theory of Metschnikoff should rapidly make converts, if for no other reason, because of its hopefulness; indeed, it is in this spirit that in conclusion the writer feels himself constrained to cry—

All hail to this valiant warder of life's citadel;
All hail to the phagocyte!

A DENTO-LEGAL CASE.

BY WILLIAM L. DRUMMOND, D. D. S., NEW YORK, N. Y.

It was late one drizzly night that a stranger touched the electric button on Dr. Fair's office door. The bell was answered by the dentist himself.

Said the stranger: "I have just been around to Dr. Harm's office to have a tooth pulled and find that he has gone for the night. I have been told that you are a very careful dentist, and I would like to have you take it out for me."

"Sir," replied the dentist, "you are right. I am a careful dentist, but I never extract teeth for strangers unless introduced by some one known to me."

"If I pay you your fee, what difference can that make to you?"

"Well, sir, as the result of being a careful dentist, I have accumulated some little property and a good reputation, and enjoy the confidence of my patients. That reputation and property might be imperiled should I operate for every stranger who applies to me for professional services.

While I would be careful to do my duty as I understand it, I am not sure that the patient would be equally careful or conscientious. A stranger applying to have a tooth extracted at a late hour of the night, might be a person of intemperate habits, and on leaving the dentist follow the bent of his inclination so far as to become intoxicated and place himself in peril, whereby, in a personal encounter between himself and another, he might sustain injuries to his person and bring himself to the belief that the dentist was the cause of it—falling against a post, or being struck in the face by some one. The incident might escape his recollection, and as a result of his hallucination—when out of the hospital—consider the propriety of suing the dentist. Should he consult a certain class of lawyers, he would be advised to commence a suit for damages, and if the patient was impecunious so much the better. As cases of this kind are usually taken on contingencies, the lawyer, if he can settle, will be better off than in a suit. The client is not told that in case he fails to prove his case he must pay the costs of the suit, and his failure to do so will make him liable to imprisonment for non-payment of costs. Now, Dr. Harm, of whom you spoke, is somewhat differently situated. The landlord of the building owns most of the furniture and dental apparatus and rents the same to the dentist, and a suit in that direction would not avail a profit to either the lawyer or client; in fact, the irresponsible dentist may undertake the most hazardous operation with impunity, and smile at the legal profession and those who employ them. Since it is the disposition of people to sue medical men and to be encouraged in the same, it is well for professionals to look out. Good night, sir.”

Having heard of this conversation I interviewed the dentist, who gave the following explanation :

“One day in the month of March I received a letter from a legal gentleman. From the name I judged he was not a native of this country. Suspecting some plot I took no notice of the letter. Shortly after I received a summons and complaint, which set forth that in September last I had fractured the jaw of his client, who had an equally unpronounceable name, and who had been in the hands of medical men ever since, was unable to work, etc. I placed the summons and complaint in my pocket and did not mention the circumstance to any one. The legal man thought, no doubt, that I would at once go to his office, as the indignant professional always does, and discuss the matter with him, and thereby give away the defence. Twenty days being the time to answer, and two weeks having already elapsed, a patient called one day and wanted some work done, but mentioned that he could not wait long as he had to go to court. He, however, gave an account of how *he* had been sued. I had nothing to say, as I suspected this was a device to ascertain my feeling regarding a law suit. On the eighteenth day I gave the summons

and complaint to my lawyer, and as he had only two days for an answer, we asked for further time, which was granted. When the extension was about up, we moved for an examination before trial before answering. These tactics had the desired effect: the plaintiff fought hard to prevent the examination. Now, up to this time I had never seen the plaintiff in the action, nor could I ascertain his whereabouts. The examination must of necessity bring us face to face, and as I had a record of every case on which I had operated, I was pretty confident how I stood in the matter. Now, dentists are not aware perhaps that the courts have no power to compel the plaintiff in an action to come into court and submit to a medical examination for the benefit of the defence. Of course we were content with the oral examination which was obtained. The plaintiff's attorney thought that the matter could be settled for a matter of \$500, after the examination for about \$100, subsequently \$50 for the poor man. The oral examination developed what we wished to know—who he was, and where he had been during the past six months. We found that I had not operated for the man, but a dentist near by had, and that a doctor had operated upon him before the dentist; and that he had not worked at the places that he alleged he had; that his jaw was not broken, he had simply a swollen face after extraction; that is as far as the case ever got. My attorney sent me a bill for \$15. The plaintiff could not speak a word of English, had only been in the country about eighteen months; he is probably a citizen by this time. The plaintiff's attorney threatened me with publication so as to force a settlement. You see he was thus making the case his own, as his prospective fees were diminishing; and when a lawyer makes his client's case his own, he has two things to repent of—the ingratitude of his client and very little compensation. So, from my experience, I would advise: should you be sued, do not discuss the case with any one, and be sure not to tell your wife or daughter, or any female, brother or relative, and particularly avoid a brother professional. A plaintiff often makes out his case from the indiscreet utterances of the defendant. By a careful discrimination for whom I operate, I preserve what reputation I have made, and, what is more, my tranquility of mind, and leave the lawyer and his client to the advertising professional. I enjoy the theater or opera after office hours, much better than taking out teeth for strangers."

M. MORELETTE, a well known French scientist, states that vulcanized rubber dipped suddenly into boiling glycerin takes the character of non-vulcanized rubber, *i. e.*, that its parts can readily be joined, and that it dissolves in the usual solvents of caoutchouc. The glycerin must be boiling at the time of first contact.

HOW TO CONTROL PATIENTS.

BY A. CHARLATAN, DENTIST.

If patient calls with a violent toothache, don't let him wait too long, ere you relieve him, or he may take himself off to another dentist; of course let him wait a few minutes or he may think you are not busy. If you have two operating chairs well screened from view from any one in the reception room, and also each from the other, you might appear to have a patient in one of them; rattle instruments a little, speak as if to some one you were operating for, and just as your patient is about to leave thinking you are too busy to attend to him, you may excuse yourself to the chair for a minute. Now seat your patient in your best chair. You might mention that you have a better one which you use for filling, but this comes in handy for extracting. Let him see you wash your hands and wipe your brow, while remarking that gold filling is warm work.

If the patient appears courageous always lance the gum, especially if 'tis a very easy tooth to pull, or he will think you have not hurt him the worth of your fee. But if it is one of those very loose ones just ready to drop out, don't monkey around it with a lance or anything else, or it may fall out, and you lose your job; get your forceps on it as quickly as possible. Should he be one of those persons who expect you to pull a loose one for half price, just poke the gum smartly with the forceps or give it a pinch with same, so as to give him a full-fee hurt.

But should he not want to be hurt for any money, you may recommend your always fresh nitrous oxide gas, and should it be very easy and loose you may use your never-fail anæsthetic, of which you are sole discoverer and only user, and he will be so pleased you may charge him a dollar extra, as it is a very expensive drug and his case required a good deal. But if the tooth is anything but an unusually loose one, don't use the local anæsthetic unless you can shake up with it some electricity, psychology, faith cure, etc. But supposing he takes gas, and a root breaks off, and you are unable to get it out though you get away all the flesh and alveolus in the neighborhood, and loosen the two adjoining teeth? Now you want to lose that tooth (or part of tooth) in the spittoon, as the patient will want to see it. Just substitute another one for it, one of those which you have saved from other patients for these occasions. If it is a tooth with unusually large roots, one from some buck nigger, he will take great pride in taking it home and showing it to his friends and laud you up to the skies as an extractor. If you give him an upper molar with three roots instead of a lower one, like his own, you'll get all the more credit, as the patient may remark that the last

one he had extracted only had two roots. and the dentist down the street broke it, and had to go for it twice before he got it out.

But should his tooth break and he not under an anæsthetic, you will have to try other tactics ; if after eight or ten attempts you fail to get it out, and have broken your collar button and suspenders. got gore all over you cuffs and your patient, and have hurt him several dollars' worth. should he show signs of discontent or anger, you want to get just a degree angrier at him than he is at you ; tell him it is all his own fault for letting the tooth become so rotten that the top became pure calcium phosphate which was bound to crush, and one of the roots due to his peculiar constitutional diathesis had formed a double curve completely circumventing a root of the post approximate tooth, and the cryptococci cerevisia and streptococci pyogenes had crawled down the other root and set up a pericementosis, forming a nodular hypertrophic squamiferous inseparable gomphosis, and until an odontonecrosis of the remaining part was brought about, he would have to have patience, go home and practice prophylactic odontotherapia, and that the pain he felt was not due to tomomania on your part, but was caused by a hyperæsthetic odontobothritis connected with the trigeminal nerve, and the pain you had to undergo at seeing him suffer is inexpressible, and the sympathy you expended at each pull was worth at least two dollars a sympathy. You will by this time have quite regained the confidence and gained the admiration of your patient, who will willingly pay you a good fee, and go home as happy as his state will allow, feeling thankful that he fell into such skillful hands. — *Dental Mirror*.

THE DANGERS ARISING FROM SYPHILIS IN THE PRACTICE OF DENTISTRY.

BY L. DUNCAN BULKLEY, A. M., M. D.

Attending Physician to the New York Skin and Cancer Hospital, etc.

We will now consider some of the observed facts in regard to the communication of syphilis in dentistry, and afterwards examine the modes of transmission and the means of prevention. Our clinical study will naturally divide itself into two lines of thought: 1, in regard to the dangers from syphilis to *patients* undergoing dental operations: and 2. in regard to dangers to the *operator* from the same source.

First as to the dangers to the *patient* from exposure to the syphilitic poison during dental operations:

Inasmuch as it presents many points of interest, relating both to the patient and operator, I may be allowed first to recite the case alluded to,

which came under my own observation and treatment, and which first called my attention particularly to the subject.

Mr. X. W., a gentleman of intelligence and position, aged 60 years, came to me September 11, 1884, on account of a sore on the tongue, which he feared to be a cancer. The history was, that some ten weeks before his first visit, he had first noticed a little point of soreness, which had gradually increased in size, in spite of treatment, until latterly it had come to give him considerable annoyance, so that he was conscious of its presence at all times; the true nature of the sore had evidently not been recognized.

On examination, there was found on the right side of the tongue, about an inch from its tip, a hard, inflamed mass, nearly half an inch in diameter, the centre ulcerating and the edges somewhat everted; it was not painful except when irritating food or drink touched it. The two upper molars were found to have sharp and rough edges, and he had been wearing a red rubber plate until recently. There was a small and painful gland beneath the jaw on that side, slightly enlarged.

Thinking that the ulcer might possibly be due to irritating local causes, he was given a soothing mouth wash, and an alkali internally. Five days later there was a marked improvement in its condition; the ulcer had a less angry look, but its edge was more clearly defined as the inflammatory element had somewhat subsided. He had been, of his own accord, to his regular dentist, and had had the roughened teeth made smooth, and had left out his set of artificial teeth.

From a careful second study of the case, I then felt convinced that the sore was a chancre, a primary lesion of syphilis, and he was immediately put on antisyphilitic treatment; the general eruption and other symptoms which followed a few weeks later rendered the diagnosis certain, together with the remarkable manner in which the sore healed and symptoms vanished under the proper treatment for syphilis.

In searching for the mode by which the syphilitic poison had gained entrance, it was learned that, during the month or so previous to the appearance of the sore upon the tongue, he had, through the persuasion of a friend, been under the care of a dentist of the cheaper, advertising order, who, he had noticed, was not at all cleanly either in his person or with his instruments. He could not locate the exact date of the injury of the tongue by the dental instruments, but work had been done in that locality, and he remembered the instrument occasionally slipping, as will often happen, inflicting injury to the soft parts. He was a married man with a family, and was very desirous of learning how he had become infected; he had certainly not been exposed in sexual intercourse, nor in any other manner which we could discover.

The interesting points in the case are: First, that while the proof is not absolute that he was infected in the dentist's chair, still the circumstantial evidence is so strong that little, if any, doubt can be entertained that the poison came through this channel. The habits and ways of the particular dentist were such that poisonous material from the mouth of a previous syphilitic patient could readily have been transferred on instruments, or otherwise, to the wound made in the tongue, either by the sharp teeth or by a slip of an instrument. The second interesting point is, that this patient, before the true nature of the disease was ascertained, had been to his own regular dentist for smoothing the teeth, and so had certainly exposed him, and others through him, to the poison, which was secreted freely from the raw surface of the chancre.

The earliest recorded cases of the transmission of syphilis in dental operations are in connection with the transplantation of teeth, during the last quarter of the eighteenth century.

Sir William Watson* published a case of this description, and John Hunter† relates two similar cases about which there can be no doubt. J. C. Lettsom‡ also recorded three cases; of these, one was personal, one seen by a Dr. Hamilton, and the third occurred in America, having been observed by Kuhn, in Philadelphia; these gentlemen furnished notes of the cases to Dr. Lettsom. This mode of transmission does not occur again in literature, to the knowledge of the writer, although Gibier§ says that "Cases have been recently related." In view, however, of a recent revival of the operation of tooth transplantation, or implantation, it is quite possible that the future may furnish fresh instances of this mode of the innocent acquiring of syphilis.

From this period no other causes of the transmission of syphilis through dental procedures are found recorded for nearly a century; indeed, not until the advent of modern operative dentistry and active medical observation.

The first case met with is one reported by Dr. C. W. Dulles,|| of Philadelphia, and which was also seen by the late Dr. Maury. The patient, a female domestic of excellent character, developed a chancre of the lip two weeks after a visit to a dentist; on that occasion he extracted a tooth, and later did some cleansing of the teeth. Although no confirmation was obtained, it seemed reasonable to suppose that the operation of extraction was in some way responsible for the inoculation.

* Watson, "Transactions of College Surgeons," 1785, iii., p. 328.

† Hunter, "Treatise on the Venereal Disease," 1st Engl. ed., 1786; 1st Amer. ed., Phila., 1818, p. 362.

‡ Lettsom, *Transactions Lon. Med. Soc.*, vol. i., 1787, p. 137.

§ Gibier, "Ann. de Dermat. et de Syph.," 1882, p. 129.

|| Dulles, *Phila. Med. and Surg. Reporter*, Jan., 1878.

Dr. F. N. Otis* also mentions a chancre of the lip which occurred in a gentleman "about three weeks after a morning spent in a dentist's chair."

Lancereaux† relates a similar case of chancre of the lower lip in a woman, after the extraction of a tooth and other dental work, and Giovannini,‡ of Bologna, has reported a chancre of the lip, apparently from a dentist's instrument.

Leloir§ mentions having seen a man with chancre of the gum, in whom the infection seemed to have taken place in consequence of cleaning and filling a cavity in a tooth, with soiled instruments. Lydston|| has likewise reported the case of a woman with syphilis, in whom the chancre on the gum, below the lower middle incisors, appeared to be the result of some cleaning and repairing of the teeth done three weeks previously; the glands beneath the jaw were enlarged, beginning a week or more after the appearance of the sore on the gum.—*Extract from Paper read before the New York Odontological Society, April, 1890, and printed in the International Dental Journal.*

THE MECHANISM OF INFECTION.

One of the most learned, ingenious, and valuable of the addresses delivered before the late International Congress was that by Professor Bouchard, of Paris. Of the eight different processes by which it has been thought that the animal tissues were able to protect themselves against the action of bacteria, he dwelt upon but two as being efficient, viz., phagocytism and what he has denominated the bactericidal condition. In the former, cellular activity prevents the development of micro-organisms; in the latter a chemical condition is induced, which not only destroys the microbes, but retards their growth and multiplication, reduces their nutrition, and weakens their functions. Phagocytism is a general and universal process, a constant function during health. The bactericidal condition is accessory and contingent. Neither, taken by itself, is capable of preserving or restoring the integrity of the economy. It is, in general, by the concurrence and association of the two processes that immunity is assured and cure produced. In vertebrate animals local injury excites an accumulation of those cells capable of migration,—the white blood-corpuscles and the leucocytes of the lymph. By the side of this pathological diapedesis of white

*Otis, "Lectures on Syphilis," New York, 1881, p. 102.

†Lancereaux, "Proc. Acad. de Med. de Paris," *Union Med.*, 1889, xlviii., p. 655.

‡Giovannini, "Le Sperimentale," 1889, p. 262.

§Leloir, "Lecon sur la Syphilis," 1886, p. 62.

||Lydston, *Journ. Amer. Med. Assoc.*, 1886, vi., p. 654

blood-cells there is constantly taking place a normal migration of lymph-cells toward the surface of the internal integument. This occurs especially in those places where microbes are able to penetrate an intact membrane, as in the pulmonary alveoli, the tonsils, and Peyer's patches. Now, even in health, microbes do succeed in passing these boundaries, but they are immediately enveloped and destroyed by the lymph-cells. Hence, although these organisms abound in the respiratory and digestive tracts, they are, in normal conditions, prevented from entering the blood. The normal blood, as Pasteur has asserted, contains no bacteria; but Professor Bouchard has seen them rapidly make their appearance in the blood of healthy animals when those are exposed to the action of causes which induce the development of infectious disease in man. The prolonged action of a moderate degree of cold is one of the commonest of these causes, and in animals subjected to such influence for a few hours the presence of bacteria in their blood could be demonstrated by culture. It follows that inhibitory nervous influences embarrass normal phagocytism. A temporary suspension is followed by the passage of microphites from the lung, pharynx or intestine into the blood. In a corresponding manner the same influences restrain the pathological phagocytism with which the white blood-corpuscles are concerned. Phagocytism, consequently, whether under normal or pathological conditions, is one of the manifestations of *vis medicatrix naturæ*.

Very slight differences of chemical composition in inert media suffice to render the growth of microbes more or less active. This consideration helps us to comprehend that differences in the composition of the humors of living animals may produce the same results. Thus, for purely chemical reasons, bacteria may be destroyed, dissolved, or inhibited in development; on the other hand, their activity may be greatly heightened, while between these two extremes every grade of variation may occur. A certain number of these results have been obtained by the culture of pathogenic bacteria in animal fluids which have been entirely free from cells. It has been observed that the blood of an animal naturally resistant to a certain microbe may, nevertheless, serve as an excellent culture medium for that very microbe. Moreover, the blood of an animal which is unresistant to a certain microbe may prove destructive to that microbe. These paradoxical facts prove that natural immunity does not depend upon the bactericidal condition, and that receptivity is not linked with the absence of that condition. It is with acquired immunity that the bactericidal condition is concerned. An infectious malady, when not fatal, produces at the same time immunity and a durable modification of the fluids, which it renders bactericidal; that is, capable of producing, if

cultivated, an attenuation of a microbe of the same species which gave rise to the disease. This bactericidal condition does not depend upon the cells which may be present in the fluid. As regards five microbes, it has been demonstrated that vaccination produces the bactericidal condition.

Bacteria act upon animals by means of the substances which they secrete. The intensity of the chemical action is proportional to the quantity of chemical substance produced. This quantity may be considerable, owing to the immense rapidity with which bacteria multiply. There are now known eight physiological properties belonging to bacterial products, by which pathogenic microbes can influence animal bodies.

Cedema and suppuration resulting from exudation and diapedesis are the expression of vascular reaction, but this reaction is not, according to Professor Bouchard, the direct result of the chemical action of the bacterial products upon the vessel. It is due to an active vascular dilatation, which places the vessels in the condition studied by Cohnheim as the stage preliminary to diapedesis. In the case of those diseases which develop without any local excitement at the point of introduction, the probable explanation is that their specific microbes secrete irritant matters, but that they also secrete a matter which prevents the occurrence of diapedesis. Such matter acts by paralyzing the vasomotor centre. Therefore, while bacteria generate substances capable of producing local irritation, the vassodilator paralysis induced by another secreted product prevents the occurrence of local inflammation, and particularly vascular dilatation, exudation, and diapedesis. For this reason they are unchecked by phagocytism, and left free to develop, multiply, and secrete. In addition, however, to these noxious materials produced by bacteria, others are formed which are useful to the infected system. Such are the vaccine elements of bacterial secretions. The list of these is being constantly enlarged. They are eliminated by the urine, and are not entirely removed prior to the expiration of fourteen days. Their action must necessarily be indirect, because their protective influence does not manifest itself until the fourth day after injection, when a great part of the matter is already eliminated. The immunity which they confer depends, in fact, upon the production of the bactericidal condition. The condition remains after the substance which produced it has passed out of the system. The nutritive type of the animal cells is definitely changed. Immunity is established somewhat slowly. If, when exposed to infection, the fluids are bactericidal, there is no growth, no development of microbes, and no disease excited. If, on the contrary, the fluids are favorable to growth of the microbe, development begins immediately, and the phenomena of

disease ensue. If there is no irritation at the point of entrance of the germ, the system loses the protective advantage of phagocytism. Fortunately, however, while the bacteria throw deleterious substances into the blood and tissues, they are secreting another substance the presence of which is not revealed for a certain number of days, but which penetrates the cells, modifies their nutrition, and, in fact, establishes the bactericidal condition. At this instant the disease has attained its acme and begins to decline.

We have thought fit to present to our readers the foregoing abstract of the views of the eminent French professor on account of their scope and ingenuity, and the importance of the subject. As he himself remarked at the termination of his eloquent address, they are doubtless not exempt from hypothesis, but he believes that in essential points they rest upon a firm basis of experimental demonstrations.—*Editorial, in Medical Bulletin.*

IDENTIFICATION BY THE TEETH.

On the 21st of July last a dead body was found floating in the Potomac river above Georgetown, D. C. About one week previous, Charles C. Andrews, formerly of Baltimore City, but at the time living in Washington, D. C., disappeared from his home and had not been seen since that time. A few days ago the body found in the Potomac was identified by Dr. T. W. Coyle, a practicing dentist of Baltimore, as that of Mr. Andrews by the dental work done by Dr. Coyle in June, 1876. The following is the record of the dental work and a history of the case:

Mrs. Andrews, wife of the missing man, went to Dr. Coyle's office, 825 North Eutaw Street, and asked that he go over to Washington to examine the body of the man found on July 21, and see if he could recognize it. It was impossible at that time for Dr. Coyle to go, and yesterday Frank Andrews, brother of the missing man, Detective McDevitt, of Washington, the representative of an insurance association, and two others, took to Dr. Coyle's office the skull of the drowned man. As soon as he looked at the jaws he recognized the skull as that of Charles C. Andrews by the fillings he had put in the teeth fourteen years ago, when Andrews was a young man of twenty-four. The greater part of the work was done on June 26, 1876. At that time, and subsequently, Dr. Coyle inserted in the upper jaw of Andrews a filling in a crown cavity in the right twelve-year-old molar, an approximal cavity in the right lateral incisor, a lateral approximal cavity in the left eye tooth, a crown cavity in the left posterior bicuspid and a crown cavity in the left wisdom tooth. He extracted three of the front teeth, one right anterior bicuspid, and there

were teeth on the left side out, a molar and two bicuspid. He made a set of seven false teeth on a rubber plate, all for the upper jaw. In the lower jaw he filled a number of teeth which he remembered. All of these fillings were of gold except the last which was of amalgam. The set of false teeth was gone, as was the left eye tooth in the upper jaw. The loss of this tooth was due to the handling of the body, the examinations that had been made, etc. One of the men present, who saw the body when found, says the tooth was in its place then. Dr. Coyle rummaged among a lot of his old books and at last found that containing some of the accounts of his patients for the year in which he did work for Andrews. Over Andrews's account were exact diagrams of his mouth and of the work Dr. Coyle had done for him. Every one present was perfectly satisfied, after Dr. Coyle had explained the diagrams, that the head was that of Andrews, and Dr. Coyle says he is willing to make oath to it before any court in the land. He is satisfied that the body could have been identified in no other way. All the fillings were in place, as sound and solid almost as the day they were put in. When the body was found in the Potomac, near Georgetown, D. C., it was entirely nude, and no trace of clothing has yet been found. It was buried in the almshouse cemetery, it was exhumed once after that for identification, then reinterred, and then within the last day or so exhumed again in order that the skull might be brought to Dr. Coyle. Mrs. Andrews has claimed the body, which will now be prepared for burial again and brought to Baltimore, and interred in Bonne Brae Cemetery on Saturday. Mrs. Andrews is now perfectly satisfied that the body is that of her husband. She has believed it to be for some time past, though she could not identify it because of decomposition. The police, who are investigating the mystery of his death, are as yet without a clue.

An article in the Baltimore *Daily Sun*, relating to questions of "dental jurisprudence," contains the following:

The remarkable identification of the body of Charles C. Andrews by Dr. T. W. Coyle, the Baltimore dentist, after the finding of the body in such a condition of nudity and decomposition that identity was not possible by ordinary means, revives the question of dental jurisprudence. It was in 1883 that Richard Grady, M. D., D. D. S., made a plea before the Maryland and District of Columbia Dental Association that "Dental jurisprudence should have not only a name, but a local habitation." In Baltimore, the oldest and most widely known American centre of dental learning, has occurred the most striking evidences of the value of dental jurisprudence, not alone in the Andrews identification, but, as Dr. Grady showed, in the Goss-Udderzook murder case. The doctor noted in his paper twenty cases of personal identity that were established by the teeth, some of which have a local interest here.

His paper says: "The Goss-Udderzook tragedy was a double story of fraud in the earlier stage and murder in the later. February 3, 1872, a newspaper stated that W. S. Goss, living at 314 North Eutaw Street, had been burned to death in a cottage outside of Baltimore the previous night. The remains of a human body were taken from the building. The lower limbs were destroyed, and the features were so burned or charred as to be beyond recognition. From the shape of the chest, neck and head the corpse was identified as that of W. S. Goss, so the coroner's jury rendered a verdict that W. S. Goss came to his death by the explosion of an oil lamp. The body was buried in Baltimore Cemetery. The widow had no question but that it was that of her husband, as she knew the contour of the neck, head and breast. Ten or more witnesses testified to their belief in the same identity.

"In May, 1871, W. S. Goss had seemed to be seized with a sudden mania for insuring his life. He had insurance amounting to \$25,000, payable to his wife. The stories of Wm. E. Udderzook, a brother-in-law of Goss, conveyed the impression that he knew too much, and led the insurance company into an inquiry. There was nothing in the way of a direct demonstration to show fraud. Mrs. Goss was asked to make an elaborate description of her husband's teeth which she said were solid, sound and regular. She said that during the fourteen years she had lived with him he had had no pain from his teeth, and had not required the services of a dentist.

"The remains were exhumed and examined in the Baltimore College of Dental Surgery, and Prof. F. J. S. Gorgas wrote a report and modeled plaster casts of the jaws, showing that the buried man must have had teeth drawn frequently by a dentist, and that his teeth could never have been truthfully called regular and sound. In a trial in which the companies attempted to prove that the body found was not that of Goss, Dr. Robert Arthur testified that the plaster model of the subject's mouth, made by Dr. Gorgas, showed much disease, and much pain had been suffered. The jury returned a verdict on June 26, 1878, for Mrs. Goss, for the amount of insurance, with interest. On July 1 or 2 the body of Goss, who had been murdered, was found in Chester County, Pa., after Udderzook had been with him. The description of the body included the teeth, and Udderzook was convicted of murder in the first degree."

Another case is that of Miss May Hatch, given as follows: "Miss Hatch, of Baltimore, went to Norfolk, Va., June 16, 1888. There she took the steamer for Boston, and when on the ocean it is claimed committed suicide by drowning. To perfectly establish the identity of the remains, Dr. Norris, of Baltimore, examined the teeth, and comparison with his diagrams left no doubt regarding the identity of the corpse." In addition to these cases are cited the identification of C. Arthur Preller, the victim of the St. Louis trunk mystery, and that of the Prince Imperial of France, who was killed in Africa.—*American Journal of Dental Science.*

TREATMENT OF THE THIRD STAGE OF ALVEOLAR ABSCESS.*

BY E. C. MOORE, D. D. S., DETROIT, MICH.

I am of the opinion that in almost every case of alveolar abscess the happiest results may be attained without the application of medicines, unless we may construe water as coming under that head. Although the writer generally uses some antiseptic or disinfectant, or, in the language of Dr. George Watt, "a stink disguiser," or germ destroyer,—this not so much as an element in the curative process, as for the comfort and pacification of his olfactories,—the treatment consists chiefly in removing the cause or source of this outflowing fountain, the putrescing nerve or pulp, just exactly as one would remove from the alley a dead and decomposing cat or dog if in too close proximity to his residence. It is of little consequence how this is accomplished, so that it is effectually accomplished—the source removed, eradicated; just a little fresh dirt thrown over the defunct animal may change the character of the air wafted through the family residence for a time, but as the elements of combustion, sun and air or heat and air, again reach the dead flesh, the product of decomposition is made manifest. Just so in the treatment of the nerve canal; the dead cat must not only be thoroughly removed, but a barrier placed against its possible return, and, so to speak, the alley closed up. This dead matter, animal or vegetable, must be removed, and in its stead a filling of almost any indestructible substance must thoroughly seal the apex of the root at least. Now, in the removal of this matter, and in the process of preparation for filling, there is one infallible remedy or preventive which I am going to disclose to you as a great secret, (and if it should be the only recommendation in this paper heeded, the writer is content,) and which, if you will use, can not fail to prevent trouble. We often hear practitioners speak of sure cures, or specifics for certain troubles, which we are apt to take with at least a grain of allowance; but I tell you I have a sure cure or preventive, and I can demonstrate to a certainty its infallibility, and that is a preventive of going through the side of the root in the process of cleansing or preparing for filling. Never, never, never use a drill in this connection; it is useless, it is unnecessary, it is bad, it is senseless, it is unpardonable, it is criminal, and should be a State prison offense, so inexcusable is it. If this precaution or preventive is acted upon, it is simply impossible to puncture the periosteum, unless there is an opening already

*Read before the Michigan State Dental Society, 1890.

there, for which you can in no way be responsible, and here is the strong point in favor of this advice. If you do not use the drill, you cannot be held or made responsible for any openings through the root. You are satisfied in your own conscience that you have not at any point gone through the side or bottom. With the excellent quality of broaches and canal cleaners, particularly the Donaldson, there is no excuse, and no guilty man should escape.

As I have already intimated in this short paper, it is of little consequence what the canal is filled with so long as the substance is indestructible in the mouth; but both the cleansing and the filling must be thorough—be sure of this. And to do all this it is unnecessary to wait a minute for farther treatment than has already been described in this paper. The permanent filling, so far as the canal is concerned, can be put in at once, and there is the end of it, leaving the rest to the tender mercies of dame nature, who only mixes a little time with her remedies.

For a filling material the writer prefers tin or oxychloride of zinc, the former being used in the straight, or single canaled teeth, and is prepared from a light number of foil by shaving off with a sharp pair of foil shears into hair-like strips. One end of one of these hair-like strips is placed at the orifice of the canal to be filled, and with a fine, smooth broach reduced to this fineness and smoothness by a fine oil stone, and with the same squared across the end, the foil is caught by this squared-end broach and carried to the extreme end of the canal, and by a slight backward and forward motion the rest of the strip is tucked in and made quite compact. This operation is repeated to the satisfaction of the operator, and in receding from the apex of the canal, and as it grows larger, larger instruments are used. It is not the intention of the writer to enter too much into minutiae. All this is worked out by the operator himself.

Oxychloride of zinc is used in a class or kind of root filling where the canal is very small or difficult of access, or the canal can only be entered by using a curved instrument. A very fine broach, prepared as above described, only smaller, is used to work this cream-like mixture of oxychloride of zinc into the finest canals. A small amount of the mixture is placed at the orifice and the fine broach punctures it and passes on to the extreme end of the canal, and then a slight motion of the instrument will cause the thin mixture to disappear into the canal, removing the instrument occasionally to expel the air from the canal, to allow the oxychloride to take its place. This is preferable, in the writer's estimation, to a solution of gutta-percha and chloroform; it is more liquid-like and does not stiffen like the gutta-percha, owing to the rapid evaporation of the chloroform.

After this short description, passing around some of these small instruments will give you a better idea how this kind of root filling is done, and how the little instruments are prepared.—*Ohio Journal of Dental Science.*

THE DENTAL SPECIALTY IN EUROPE.

“I come now to the third point, which I consider of more importance than those to which I have referred, a point which has had more effect upon the development of the dental specialty in Germany than any other,—that is the study of bacteriology. As you know, it is but a few years since the introduction of the well-known methods of Professor Koch, by which the study of bacteriology has been made accessible to every one. Many have since engaged in the study of the human mouth. This has been a portion of my work. A great many micro-organisms are present there, and they find a fertile field for vegetation, feeding upon the dead matter therein contained. Up to the present date, seventeen micro-organisms, which are divided pathologically into three groups, have been discovered in the human mouth, and have pathogenic properties. When we consider the fact that in the oral cavity not less than seventeen pathogenic micro-organisms have been found, and that a larger number may yet be discovered if experiments are continued, we may have an idea of the effect upon the human body. This has created great interest upon the part of physicians as well as dentists, and many clinical cases have been reported which bear out the fact that the oral cavity exerts an influence upon the general health, and that the profession of the dentist is second to none in importance. I will give you a few instances to substantiate this view. In looking up the literature of the case, I was able to find ten to fifty cases of death resulting from abscess of the teeth or from dental operations which had been carried out under improper antiseptic conditions. Some time ago a student of mine, engaged in similar investigations, was able to find in a short time the history of not less than nineteen cases of similar character, which had occurred in two hospitals in Germany. Some months ago a man was found dead in the neighborhood of Berlin. There were no signs of external violence, no chemical agents had been used to bring on death. The autopsy brought out the fact that death resulted from meningitis, which was traced to caries of the teeth. A few months later a lady graduate in a dental college had the misfortune to wound her hand with a dental-engine bur while operating upon a carious tooth for a patient, and the last I heard of her was that there was little hope of her

recovery. There are hundreds of such cases, but the practitioner is not willing to make them public.

"A distinguished specialist of Posen has occupied himself with this subject, and he mentions that loss of appetite, nausea, general ill-health, may be brought about by improper attention to the mouth, causing a chronic state of putrefaction, the products being absorbed by the mucous membrane, with serious results to the general health. He was able to restore a patient by nothing more than properly cleansing the mouth. It has also been ascertained that the condition of the oral secretions and caries of the teeth act in other ways. Examinations of nine hundred and eighty-seven children in this way demonstrated that ninety-nine per cent. of all those suffering from caries of the teeth were affected with putrefaction, swelling of the lower glands, etc., of which no physician would be able to make a diagnosis.

"I examined one case, from which there was an unpleasant odor, to determine how many bacteria may be in the human mouth at one time. I found there were millions of germs. Of these, a large number are swallowed at every meal-time, and in persons predisposed, exert a malignant effect upon the general health. I will also cite one significant case which occurred in Berlin. James Israel, who has done so much work in this direction, discovered in one lung a very small body not much larger than the head of a pin. He sent it to me for examination, and I found it was dentine broken off from the root."

Dr. Miller then entered into an explanation of how a certain pathogenic form is a constant inhabitant of the mouth, and entering the lungs may develop pneumonia; and experiments, recently made, have "almost established the fact that micro-organisms may exist in the lungs for a long period without any ill effect." He then continued:

"These facts, I think, are sufficient to show the immense importance of a proper care of the human mouth, and the action which it exerts on the general health; and we consequently will not be astonished that in Germany there has been a marked progress in the dental profession in the last two years. Physicians have taken more interest in our specialty; at the same time we need a higher standard of education in order to bring out a better appreciation of these facts, and to this end we are aiming in Berlin to increase the course of study. At present we have virtually a three years' course instead of two, which we had a few years ago. At the same time, physicians as well as dentists recognize the fact that medicine rests upon common ground with dentistry, and it would be as impossible to separate medicine from dentistry as to separate the human mouth from the alimentary tract."—*Extract from Speech by Professor W. B. Miller, in the International Dental Journal.*

OLDEN-TIME ARTIFICIAL TEETH.

A curious old book has just come into our hands, kindly lent by Mr. Rutterford, which already in the year 1816 had reached its fifth edition. It is entitled "A Dissertation on Artificial Teeth," by M. De Chemant. Apparently its object was to act as a kind of advertisement for M. De Chemant, since his address is printed in a very prominent manner; indeed, he devotes a page to informing those persons who may desire to consult him on the subject of his mineral paste teeth, that he would be obliged to them if they would, on the preceding day, make their appointment, etc., etc.—We fancy it would be a case of the "pot calling the kettle black," were we, of this generation, to find fault with this comely old gentleman (his portrait is given) for so doing. Unfortunately, it is now-a-days more the rule than the exception for those who rush into print, to let their address occupy a prominent position in the book, though perhaps they do not so openly (should we say honestly?) let the real why and wherefore of the book's appearance be seen.

The chief point of interest in the book centres in a sheet of engravings illustrating the various types of dentures which M. De Chemant was prepared to supply to his patients. Here is a porcelain bridge of ten teeth supported by four pivots by which they are fastened to the stumps remaining in the jaw. A single tooth for all the world like a Logan Crown. A single tooth to be fixed by means of a small plate of gold, or, as we in this inventive (sic) age would say, a bridge for one tooth. A row of teeth to be supported by ligatures; this idea we would suggest to some of those inventive genii, who are hard up for something to patent. We do not for a moment wish to detract from the merit due to those who work out original ideas, because someone else has done it all before. But does it not seem a waste of energy? Whether the fact be due to lack of reading on the part of the re-inventor or to our librarians letting their collection of books be but a miscellaneous heap of curiosities, not a classified collection with a general index and guide, we do not know. We remember reading somewhere, that in one of the German Universities there is a general index to the whole library, from which a man can see at a glance what has been done in each branch of study, so that it is possible to continue a line of research from the point where the last man left off, without wasting time going over the old ground.

Very interesting it is to be brought once again in contact with the famous medical men of the beginning of the century. Here we meet John Hunter, who introduces De Chemant to one of his patients, and these six cases of transplantation, followed by "venereal disease" which

led him to give up "this cruel practice," are mentioned. Here again, too, the "immortal Jenner," in whose presence and for one of whose patients he removed fifteen or seventeen stumps, decayed even unto the socket. Here, too, Sir Walter Farquhar, M. Vicq D'Azyr, and others.

M. De Chemant speaks of these teeth as his invention, and thus records the circumstances, "to satisfy the curiosity of the reader":

"In 1788, when I exercised the profession of a surgeon, I was consulted by a lady who had fallen into such a state of weakness as produced considerable fears of her life. On approaching her I perceived a tainted odour, which I thought proceeded from her lungs or her teeth, which were black. I examined her mouth, and was struck with the bad state of a set of human teeth implanted on a base of the tooth of the hippopotamus. This set of teeth being removed, I perceived her mouth to be almost entirely covered with small ulcers, and I had no doubt but that her disease was the effect of the putrid exhalations which proceeded from the set of teeth, and which corrupted the air she breathed; what confirmed this conjecture was that, after having laid these teeth aside, her health improved in a few days. Perceiving that this lady would not do without artificial teeth, I advised her to have several sets of teeth at the same time, so that she might change them often, after having washed them and let them dry. She did so and her health became perfectly re-established in the course of some months.

"But as teeth of this kind require to be renewed frequently, they occasion a very great expense, and even, notwithstanding their frequent renewal, they always produce a bad smell. I was induced from that time to reflect on the possibility and the means of making teeth and sets of teeth of durable and incorruptible materials. I examined almost all the substances of the mineral kingdom, and at length composed a paste, which, when it is baked, has every desirable advantage."

Now, as a matter of fact, or rather, according to Piggot's "Dental Chemistry," they were discovered by an apothecary of St. Germain. Duchateau by name. He wore artificial dentures of ivory and natural teeth, but found they rapidly became tainted by the various disagreeable odors emanating from his wares, the porous animal substances becoming rapidly impregnated by the effluvia. Mr. Guerard undertook the manufacture in 1776. Sets were made for various distinguished personages, but he failed from want of knowledge in the practical duties of a dentist. In 1788, Dubois Chemant bought the right, and managed to attract the attention of the French Academy, who appointed a sub-committee to examine the teeth. This committee found various imperfections in the teeth, a fact which, by-the-by, M. de Chemant does *not* record in his book, and one of its members, Dubois Foucou, improved them very much. Practically, little alteration has been made in this substance even in modern times.—*British Journal of Dental Science.*

PEROXIDE OF HYDROGEN AND OZONE.*

BY DR. PAUL GIBIER,

Director of the Pasteur Institute of New York.

Since the discovery of peroxide of hydrogen, by Thenard, in 1818, the therapeutical applications of this oxygenated compound seem to have been neglected both by the medical and the surgical professions; and it is only in the last twenty years that a few bacteriologists have demonstrated the germicidal potency of this chemical. * * *

In my opinion, the reason for its not being in general use is the difficulty of procuring it free from hurtful impurities. Another objection is the unstableness of the compound, which gives off nascent oxygen when brought in contact with organic substances.†

Besides the foregoing objections, the surgical instruments decompose the peroxide; hence, if an operation is to be performed, the surgeon uses some other antiseptic during the procedure, and is apt to continue the application of the same antiseptic in the subsequent dressings.

Nevertheless, the satisfactory results which I have obtained at the Pasteur Institute of New York with peroxide of hydrogen, in the treatment of wounds resulting from deep bites, and those I have observed at the French clinic of New York, in the treatment of phagedenic chancres, varicose ulcers, parasitic diseases of the skin, and also in the treatment of other affections caused by germs, justify me in adding my statement as to the value of the drug.

But it is not from a clinical standpoint that I now direct attention to the antiseptic value of peroxide of hydrogen. What I now wish is to give a report of the experiments which I have made on the effects of peroxide of hydrogen upon cultures of the following species of pathogenic microbes: *Bacillus anthracis*, *bacillus pyocyaneus*, the bacilli of typhoid fever, of Asiatic cholera, and of yellow fever, *streptococcus pyogenes*, *micro-bacillus prodigiosus*, *bacillus megaterium*, and the *bacillus* of osteomyelitis.

The peroxide of hydrogen used was a 3.2 per cent. solution, yielding fifteen times its volume of oxygen; but this strength was reduced to about 1.5 per cent., corresponding to about eight volumes of oxygen, by adding the fresh culture containing the microbe upon which I was experimenting. I have also experimented upon old cultures loaded with

*Extracts from paper read before the International Medical Congress, Berlin, Germany, August, 1890.

†The peroxide of hydrogen that I use is manufactured by Mr. Charles Marchand, of New York. This preparation is remarkable for its uniformity in strength, purity and stability.

a large number of the spores of the bacillus anthracis. In all cases my experiments were made with a few cubic centimetres of culture in sterilized test-tubes, in order to obtain accurate results.

The destructive action of peroxide of hydrogen, even diluted in the above proportions, is almost instantaneous. After a contact of a few minutes, I have tried to cultivate the microbes which were submitted to the peroxide, but unsuccessfully, owing to the fact that the germs had been completely destroyed.

My next experiments were made on the hydrophobic virus in the following manner:

I mixed with sterilized water a small quantity of the medulla taken from a rabbit that had died of hydrophobia, and to this mixture added a small quantity of peroxide of hydrogen. Abundant effervescence took place, and, as soon as it ceased, having previously trephined a rabbit, I injected a large dose of the mixture under the dura mater. Slight effervescence immediately took place and lasted a few moments, but the animal was not more disturbed than when an injection of the ordinary virus is given. This rabbit is still alive, two months after the inoculation.

A second rabbit was inoculated with the same hydrophobic virus which had not been submitted to the action of the peroxide, and this animal died at the expiration of the eleventh day with the symptoms of hydrophobia. * * *

It is worthy of notice that water charged, under pressure, with fifteen times its volume of pure oxygen has not the antiseptic properties of peroxide of hydrogen. This is due to the fact that when the peroxide is decomposed, nascent oxygen separates in that most active and potent of its conditions next to the condition, or allotropic form, known as "Ozone." Therefore it is not illogical to conclude that ozone is the active element of peroxide of hydrogen.

Although peroxide of hydrogen decomposes rapidly in the presence of organic substances, I have observed that its decomposition is checked to some extent by the addition of a sufficient quantity of glycerin; such a mixture, however, cannot be kept for a long time, owing to the slow but constant formation of secondary products, having irritating properties.

Before concluding, I wish to call attention to a new oxygenated compound, or rather ozonized compound, which has been recently discovered, and called "Glycozone," by Mr. Marchand.

This glycozone results from the reaction which takes place when glycerin is exposed to the action of ozone under pressure—one volume of glycerin with fifteen volumes of ozone produces glycozone.

By submitting the bacillus anthracis, pyocyanous, prodigiosus, and megaterium to the action of glycozone, they were almost immediately destroyed.

I have observed that the action of glycozone upon the typhoid fever bacillus, and some other germs, is much slower than the influence of peroxide of hydrogen.

In the dressing of wounds, ulcers, etc., the antiseptic influence of glycozone is rather slow if compared with that of peroxide of hydrogen, with which it may, however, be mixed at the time of using.

It has been demonstrated in Pasteur's laboratory that glycerin has no appreciable antiseptic influence upon the virus of hydrophobia; therefore, I mixed the virus of hydrophobia with glycerin, and at the expiration of several weeks all the animals which I inoculated with this mixture died with the symptoms of hydrophobia.

On the contrary, when glycerin has been combined with ozone to form glycozone, the compound destroys the hydrophobic virus almost instantaneously.

Two months ago, a rabbit was inoculated with the hydrophobic virus, which had been submitted to the action of this new compound, and the animal is still alive.

I believe that the practitioner will meet with very satisfactory results with the use of peroxide of hydrogen, for the following reasons:

1. This chemical seems to have no injurious effect upon animal cells.
2. It has a very energetic destructive action upon vegetable cells—microbes.
3. It has no toxic properties; five cubic centimetres injected beneath the skin of a guinea-pig do not produce any serious result, and it is also harmless when given by the mouth.

As an immediate conclusion, resulting from my experiments, my opinion is, that peroxide of hydrogen should be used in the treatment of diseases caused by germs, if the microbial element is directly accessible; and it is particularly useful in the treatment of infectious diseases of the throat and mouth.



HOW TO DEAL WITH ANOTHER MAN'S PATIENTS.

Few professional men have been so blessed as to have passed through their career without being forced into unpleasantness through misunderstandings arising out of their relations with other men's patients. In many ways this occurs: A. goes away, and asks B. to look after casual callers during his (A.'s) absence on a holiday or through illness. Patients, possibly new ones to A., but recommended to his house by other patients, come to B., like him, and wish to remain with him, and allege they do not know A. and do not desire to leave B., having once gone to him. Take another case: C. has a misfortune, and

gives a patient more pain than he, the patient, thinks necessary, and so betakes himself to another dentist, D., again recommended by friends. It also happens that some measure is suggested by one dentist which is not to the taste of a patient, and so the latter hies him off to get another dentist's opinion, often enough not mentioning names until the opinion is expressed, and if this is unfavorable to the previously proposed operation the patient may elect to remain with No. 2 dentist and forsake No. 1.

Children will often lead their parents to change their dentist, because Mr. So-and-So is so "rough to poor little Willie." A bad smash at one house followed by a successful extraction elsewhere may lead to alienation of patient and dentist, even if the smash was absolutely unavoidable and the lucky extraction the fruit of fortuitous inflammation plus manual dexterity, leaving it an open question which factor played the larger part in the happy result. Under any and all of these circumstances how is the dentist who is appealed to in the second place to act, and what must his demeanor be towards his predecessor whose patients the people were before they came to him? Certainly, no item of professional ethics bristles with more difficulties or presents larger scope for the exercise of tact and judicial honesty. It is too often lost sight of that doctors and dentists alike have no vested interests in their patients. The practice of giving money for the goodwill of a practice gave rise to the idea, but undoubtedly patients have an absolute right to change their dentist as often as they please, and at the present day they are more than ever disposed to act upon their rights and seek aid in their dental troubles where they consider they can most satisfactorily obtain it. Patient-grabbing is quite another thing to accepting a patient who deliberately selects between A. and B. and prefers B., although, in this case, unless there is a definite cause of complaint against A., it is certainly B.'s duty to point out that the patient being recommended to A. is *ipso facto* his, and to send the person on to A. upon his return to the charge of his practice. Where patient-grabbing comes in is when a dentist asks casually to look in a mouth, volunteers a sneer or faint praise of work already placed in the mouth. In every case it is accepted by professional men as being quite outside the bounds of etiquette to criticise unfavorably the work of another duly qualified practitioner, and the offence is aggravated when the criticism is offered without solicitation. Probably no better advice upon this most vexed question in professional ethics can be given than that implied in the dictum, "Do to others as you would that they should do to you." However, there are very many side issues which need ventilation and being well threshed out, which can very well be done through the columns of our "Correspondence."

and we shall be glad if our readers will give their brethren the benefit of their experience in the matter. Many complain that assistants are "grabbers," and not a few assistants turn the tables by reporting "sharp practice" by former principals. Even allowing for the Briton's privilege to grumble, we think the question may well be looked at from all points of view.—*The Dental Record*.

EDUCATION OF THE PUBLIC.

The propriety and desirability of educating the public with reference to personal, house, neighborhood, city, state and national sanitation has come to be recognized as essential to the national health. The medical profession has earnestly sought to convince the public of the value of obedience to hygienic laws, and to secure to the people at large the benefit of sanitary science. To some small extent these efforts have been appreciated, as the evidence has been presented of the arrest of epidemics and the prevention of the spread of infectious diseases. But the vast importance of the subject is not yet adequately comprehended by the general public. Sanitation, hygiene, prophylaxis, the laws of health, have been the texts of innumerable essays for the benefit of the community. Treatises without number have been written and published on the hygiene of the various organs of the body: on the hygiene of age and occupation; on the hygiene of the dwelling, the school, the factory; on dress, diet, sleep, rest, work and overwork; on ventilation, drainage, disinfection, adulteration of food and water supplies; on the care of the sick and aid in emergencies; on the summer and its diseases, the winter and its dangers, preventable diseases, the art of nursing, etc.,—all intended and calculated to diffuse as widely as possible a knowledge of the elementary facts of preventive medicine and the bearings and applications of researches in every branch of medical and hygienic science. Notwithstanding these labored and persistent efforts, it is marvelous what little interest comparatively is evinced by the public in whose behalf they are put forth. Even among the well-to-do classes, those of more than average general intelligence, how little is known concerning the physiology of the human body, the location and function of important organs, the circulation of the blood, respiration, digestion, assimilation, etc. !

What wonder, then, that there is so little known of the mouth and the teeth,—their development, anatomy, periods and order of eruption, the relation of the sixth-year molars to the deciduous and permanent dentures, the shedding of the temporary and eruption of the permanent teeth, the nutrition of the teeth, their nervous, regional and systemic relations, the care of the teeth, and the hygiene of the mouth !

There can be no question as to the importance of a wide diffusion of information in regard to these matters, and of an effort to awaken a general interest in the prevention and arrest of decay and loss of the teeth.

If, as has been said, the real groundwork of national health is the education of the masses, so an intelligent comprehension of the varied functions of the mouth and teeth, a better appreciation of the causes of deterioration and of the means by which it may be counteracted, is essential as the groundwork of a much needed improvement in the dentures of mankind. Dental colleges may multiply and each recurring year send out their hosts of graduates; legislatures may pass laws regulating the practice of dentistry, and thousands of operators may be kept busy in the work of repair, and still the deterioration will go on, and still a vast amount of preventable disease will make its ravages.

The remedy is the education of the people. They must be made to realize the priceless value of their dental organs; fathers, mothers, and children must be made to understand that neglect which involves the loss of teeth is inexcusable and suicidal. How to disseminate such knowledge is a problem which may well engage the attention of dental organizations.
—*The Dental Cosmos.*

MORE CRITICISMS ON "WHAT NEXT?"

ADMITTING POOR YOUNG MEN TO OUR COLLEGES.

Editor Items:—Please allow me a few lines in your valuable journal, "whose monthly visits I await with eager expectancy," to say a word against excluding "poor" young men from our colleges, as recommended by Dr. A. Dent, D. D. S., of New York, in July number of the DENTAL ADVERTISER. I think his assertion that the career of poor young men in our profession is generally a failure, is false.

The doctor starts out something as follows: "The career of many dental students is finished at the college. They have smashed almost everything they could lay their hands on—turned up the matting, broken panes of glass, pounded their fellow-students, and behaved themselves in the coarsest manner describable, hooted at the professors, and made fools of themselves generally with cigarettes, beer and dime museums." Then the doctor goes on to state that as a student's life is spent, so will his professional life be spent, and be finally a failure.

But I would like to ask the doctor, Who is it that frequents the dime museums and on his way home stops to leave a few dollars with the saloonist, drinking, shuffling cards, and playing only the one more game of billiards, reaching his couch in anything but a fit condition to retire,

let alone looking over notes of the day's lectures, or studying carefully the books which he must necessarily understand to become proficient? I wish I could say such studiousness is also necessary to obtain the degree of D. D. S.

Now, is it true that the students who have a hard time to obtain the necessities of life, or, perhaps, are acquiring their professional education on borrowed money, can be classed with those he has described?

Ask any of our college faculties. Who are the most faithful—the poor students, or those receiving their \$25 per week?

The poor students are always most attentive to lectures, and are always found at their rooms of evenings, carefully preparing themselves for their future success; and when they have honestly earned their diplomas, and step out on the broad field of their profession, their faces are not marked by the crimson hue found on the faces of those who have spent two or three years indulging in those habits so common among young men with plenty of money to spend; neither do they bunglingly perform their operations with shaky hand and empty head.

And at middle age you see them leaving their once rich, dissipating classmates on the wayside, to end their professional careers in obscurity, struggling hardest during their last days, while he, "the poor young man" you would not allow to enter the profession, moves on to wealth and honor.

I do not wish to have it understood that this picture I have drawn is without its exceptions, as some of our wealthy young men apply their money and time in the right direction; consequently, owing to their financial advantages, become the brightest stars in our profession.

When our poor young men are excluded from professional life, you will find many of our most important chairs empty, without capable men to fill the vacancies, and many a thriving dental office vacant.

RICHWOOD, O.

C. A. ROUAND, D. D. S.

—*Items of Interest.*

SHALL POOR DENTAL STUDENTS BE ENCOURAGED?

In your issue of September, page 402, appears an article headed "What Next?" Unless the dental profession is composed principally of prophets, the conundrum will prove a poser; for after reading it carefully I can only conclude it is the vamping of a peculiarly morbid imagination. The ground is taken that poor students should be debarred from taking professional degrees. Do poor or wealthy students prove the greatest credit to their preceptors? When at college, which class causes the greatest anxiety to their instructors? From which do we get the most thorough work and the best and most original theses? After graduating,

from which do we get the backbone of our profession? The history of our profession is the best reply. The men who, having the genius and the courage of their convictions to fight their way to honorable positions, have ever been those whose early days have been a struggle with poverty and inopportune circumstances, the contending with which has done much to develop their character, self-reliance and independence, and command the respect that must ever be the reward of trials overcome and difficulties surmounted. Our profession is in an enviable position. Quite within the memory of men now living, the magical metamorphosis has taken place that has brought it to its present fair proportions from the uncouth, hybrid condition in which the middle part of the present century found it.

The men who have done the most in all times, and in none more than in the present century, to develop nature's resources in science and art, in commerce and the various industries, were the honest poor, who later on attained to the highest positions, and were accorded the highest recognition that potentates and powers could confer. Franklin, Stephenson and Tyndall, Lincoln and Garfield, are but a few in the grand galaxy of stars that will ever prove fixed in the firmament of the world's history to guide the poor young man who would follow in their footsteps when his track is obscured.—*Dr. W. Mitchell, London, Eng., in Items of Interest.*

Editor Items.:—May a poor young man beg for a little space in your journal as a medium of defence against Dr. Dent's article in September *Items*, entitled "What Next?" To this class of young men, Dr. Dent, among other things, says:

"You ought not to think of such a thing as dentistry. 'You are poor.' You do not belong to the 'privileged class of persons;' your 'poverty brings the profession discredit.' You even don't have 'capital to maintain appearances and self-respect.' 'There are moral grounds' (?) which say to you, stay out."

What advice! May I say, "deliver me," if what Dr. Dent says is the voice of the profession. This, of course, I cannot make myself believe. Observation teaches us that many of the best men in the professions were poor boys, and through their own effort, pluck and grit attained success. honor and wealth in their vocation. The poor young man is generally honest with what little he has, and in nine cases out of ten does not belong to the class that have their "beer, cigars, horses, poker, base ball, brag, laziness," etc. Furthermore, were the qualifications for the degree of D. D. S. fixed at Dr. Dent's ideal standard, viz.: "College fee per year doubled," "and money enough to establish yourself in practice and live as a professional man should live," methinks the profession would soon be added to the already long list of monopolies of capital against labor.

For God's sake, and for humanity's sake, give us a chance, and see if some of us in the future, as many poor young men of the past, will not prove just as worthy members of the profession as those fellows who are so fortunate as to have their thousands. Don't shut us out and bar the door against us. From a humane standpoint we are entitled to better treatment — yes, to the same privileges as the rich young man, for we are just as ambitious as he is, and we shall prove ourselves as worthy.

HAZLETON, PA.

F. H. BOND.

—*Items of Interest.*

PRACTICAL SUGGESTIONS.*

BY DR. E. E. SHATTUCK, KANSAS CITY.

One of the most important things to consider, is our dental office. It is there we pass the best part of our life. Our failure or success in a business way depends more on our surroundings than most of us are aware. Intelligent and cultured people look to the environments on entering an office when calling to make the first appointment, and your ability as a dentist will be very correctly gauged by their first impression. It need not necessarily be furnished expensively. The one thing needful is to have it clean and neat in every detail. It should have a pleasant, inviting appearance, and tastefully arranged. This has an elevating influence on the character and disposition of the dentist. He is inclined to be more cheerful and patient with nervous and exacting patrons. Do not be afraid of spending too much money in furnishing your office. It will be a good investment. I never saw a clean, well-arranged dental office but the dentist himself was neat and particular in his appearance, and also a first-class workman. I can always tell what kind of a dentist he is by his office, or the kind of an office by the dentist. We ought not to consider this subject in regard to a well-kept office of little or no importance. It will always bring a better class of patients who are willing to pay the price we ask, and this is a stimulant for us to excel in each succeeding operation. It is a duty we owe to the profession to do all we can to improve ourselves in dentistry.

Before beginning an examination, or operating on the teeth, always wash your hands, and be sure your finger nails are clean. Unclean finger nails are disgusting under all circumstances. Always use a clean napkin or towel for each patient. Always use a new piece of rubber dam for each patient at every sitting. Do not save the same piece to be used at

* Extract from a paper read before the Missouri State Dental Association, at Pertle Springs, Mo., July 9, 1890, and published in the *Archives of Dentistry*.

their next engagement. They will have their doubts about its being the same one they had before. It makes a bad impression and adds but little to our profits at the end of the year. Always use as thin rubber dam as possible. Use fine floss silk, or linen thread well waxed. Soap the dam where you have punched the holes for the teeth; you will be surprised how easily it is adjusted where the teeth are crowded. Use cocaine on the gums around the anterior teeth. The patient will lose all dread while applying the dam, and in finishing approximal cavities the operation will be painless. Always dry out the cavity before commencing to excavate, to enable you to see in what direction the decay has extended. All operations should be made as painless as possible.

HUNGERFORD ITEMS.

THE CAUSE of unusual caries in the mouth of pregnant women is that the mouth at this time needs more care and receives less; and not because the inorganic matter of the mother's teeth goes to build up the bones of her child.

THE EDITOR of *The Western Dental Journal* is obliged to say that he has not yet received the specimens often promised him, showing a change in the whole mass where tin and gold were combined in a filling. He is also waiting for the proof that the mucus secretion dissolves oxyphosphate fillings at the cervical border.

DENTISTS grumble because they do not receive enough recognition and respect from the medical profession. To those we would say: Be sure you deserve it. If you are well up in pathology, understand thoroughly the changes in the tissues under abnormal conditions and the therapeutics which restored diseased parts, then you will have all the recognition you can ask.

WE HAVE observed that the men who are continually finding fault with Dental Colleges and their methods, are generally those who would utterly fail in even an intermediate examination which is held at close of junior year. They think the task of the professor in a college an easy position, but could not themselves stand for an hour and instruct an intelligent and wide-awake class without falling into errors so gross that even a junior student would smile. A little experience before a class would be a good tonic for these growlers.—*The Western Dental Journal*.

GRAFTING A DOG'S BONE ON A BOY.

On November 16th, at the Charity Hospital, New York City, a portion of a living dog's foreleg was engrafted into a boy's leg, to take the place of a bone that was lacking. There had been congenital malformation of the boy's leg, which had been operated upon before, and was broken intentionally by the surgeon, but union between the bony fragments had failed to take place. The boy and the dog were bound on a cot, both under the influence of anæsthetics, but the dog, which was a black spaniel, was incased in a hardened plaster-of-Paris cast, his right foreleg and head and tail being free. The boy's leg showed an abnormal degree of immobility and shortening, and just above the ankle was a space that entirely lacked bony tissue. Dr. A. M. Phelps, professor of orthopedic surgery in the University of New York, performed the operation, which consisted of engrafting the ulna of the dog's foreleg, the homologue of a man's arm, into the wound.

The boy's leg was shaved, washed with soap and water, and scrubbed with a brush of bristles. Squibb's ether was poured on the skin in order to neutralize the fatty secretions. Then came the aseptic measures. The skin was scrubbed with a solution of corrosive sublimate, and towels dampened with the solution were placed around the leg and ankle, leaving only a small portion exposed to the operator. The leg was seen to be scarred, the result of former operations. Every instrument was kept in an antiseptic solution. The cicatricial tissue was carefully removed, and the ends of the bones exposed to view. All bleeding during the operation was prevented by an Esmarch's bandage above the knee, which effectually compressed all the blood vessels of the leg. All newly formed tissue was scraped away. The periosteum of the bone was carefully pushed back with a periosteome. A nutrient artery in the bone was prevented from bleeding by a wooden plug made from a match. All the vessels were tied, and then the Esmarch bandage was removed. So perfectly had this controlled the blood vessels that only a small amount of oozing occurred, which was readily stopped with boiling-hot water. It being so near the ankle joint, great care had to be exercised in order not to cut into the joint. A plaster bandage was then put on from the thigh to the base of the toes, being left open at the point of operation.

The dog's leg was first denuded of hair and rendered thoroughly antiseptic. Here comes a delicate part of the operation. Animals are more susceptible to an anæsthetic than a human being, and great care has to be taken that the animal does not die, for it is a live, not a dead, dog bone that is wanted for the void in the boy's leg. The surgeon

cuts down into the dog's leg at a point where a dog's knee ought to be. The graft must be nourished, and to insure nutrition the keenest knowledge of the distribution of arteries in the canine anatomy is essential. The surgeon finds it necessary, and does preserve that part of the interosseous artery from which the nutrient artery of the bone makes its exit. The head of the ulna, one of the bones of the dog's forearm, is sawed off. One and a half inches below this the nutrient artery is given off, with its numerous ramifications throughout the bony tissues. The next division of the bone must be an inch and a half below. This severs the interosseous artery, but it is easily tied, and that prime factor, the nutrient artery, is saved. In his hands the surgeon now holds a piece of bone an inch and a half long. It is separated from the bony parts of the dog, but connected by flesh and those life-giving ducts, the arteries.

All is now ready, and the dog is placed alongside the leg of the boy, his head toward that of the boy. Holes are bored in the ends of the bones in the boy's leg, and silver wires are passed through, connecting the two parts loosely. The graft is next dropped between these two extremities, and medullary portions of the boy's bone are made to fit over an aluminum peg. The silver sutures are drawn tight and tied. The skin and flesh flaps of the dog's leg are sewed firmly to the sides of the wound in the boy's leg and it is dressed antiseptically. Two long rods of iron are bent to form a protection over the wound. They are firmly bandaged to the body by plaster-of-Paris bandages, and are made to allow the surgeon to look at his dressing. Last of all comes the firm strapping of the dog to the boy's leg. This is done by broad bandages of plaster-of-Paris. The vocal chords of the dog have been cut, and this operation, a painless one to the dog, will relieve the boy from the annoyance of frequent whinings. Besides, frequent injections of morphine will prevent the canine from becoming restless.

This ends the operation so far as the surgeons are concerned, it being intended to keep the dog, if living, ten or twelve days in the position described. The dog is fed with milk and water, and morphine is injected into him to keep him quiet. For the first few days, at least, after the operation, the patient is said to have been doing well. The case has attracted wide interest, the novelty of a canine bone formation growing as a part of a man's leg presenting to the medical profession especially an attractive field for future investigation.—*Scientific American*.

ANOTHER DENTAL QUARTERLY is soon to be started through the liberality and enterprise of the proprietors of the Tacoma Dental Depot, Tacoma, Washington.

REMOVAL OF BREAST DURING HYPNOTIC SLEEP.

Dr. Schmeltz, of Nice, has recently* recorded a case in which he removed a sarcomatous breast during anæsthesia caused by hypnotism. The patient was a girl, aged twenty, who was easily thrown into the hypnotic state. The operation was performed in the presence of Drs. Lauza and Barriera, and the entire organ, together with the aponeurosis of the pectoralis major, was removed by the oval incision. Five drainage tubes were inserted and the wound was closed with thirty-two metallic sutures. The operation lasted an hour. The patient remained absolutely insensible, in a condition of the deepest anæsthesia, such as is only seen after large doses of chloroform. Dr. Schmeltz says: "I operated very slowly and quite at my ease; the patient even tried to encourage me by her words; she seemed very gay, and laughed loudly from time to time as if to show that she felt no pain. In order to make the operation easier for me, she turned herself about so as to place herself in the most favorable position, keeping her right arm stretched out so that no assistant was required to keep it steady." She was kept under observation for the rest of the day, and having been told not to feel pain and to have a good night, she obeyed these instructions in the most docile manner. The wound was completely healed on the fifteenth day. The only symptom worth mentioning, which Dr. Schmeltz observed in the patient during the operation, was great pallor of countenance, without any dilatation of the pupil or weakening of the pulse. The tumor weighed two kilogrammes.—*British Medical Journal*.

ART AND DENTISTRY.

A good dentist should, indeed, be a man of great refinement, of artistic conception, with a true sense of the proportion of things, and of the harmony of colors. We have only to look at the teeth people often wear to notice that this is not very often the case. It must be remembered that in nature there is a great beauty in the irregularities, in what is often called the ugliness of shape and color. Because an even row of very white teeth is the ideal, this does not prove that such teeth suit everybody. What can be more ghastly than an old, decrepit personage, with a bad complexion, who sports a double row of splendid white teeth? What is more ridiculous than one white, spotless artificial tooth standing in the midst of yellow and partially decayed real teeth? Or, again,

**Gazette Médicale de Strasbourg*, July 1.

what a lop-sided effect is produced if teeth on one side of the mouth grow irregularly, while, on the other side, artificial teeth have been fixed up in regimental order. Yet how few people are there who, having artificial teeth, have the good sense to ask that these teeth should be just as imperfect in shape, position and color as the real teeth were they are destined to replace?

If we have not ideal teeth, the probabilities are that there are many other things in feature and complexion which also are far from being ideal. And the introduction of one or more ideal teeth, where the surroundings are anything but ideal, is no improvement. It creates a discordant note, destroys the harmony which prevails even in ugliness, and renders that ugliness more evident and more unpleasant. But it requires a high conception of true art to thoroughly appreciate these principles and apply them successfully in practice. It is, therefore, not surprising to find that distinguished dentists are the constant and appreciated friends of men of art and of letters.—*Exchange.*



RETAINING POINTS.

Nowadays it is the fashion to declaim against retaining points for cavities in which gold is to be inserted. Never was there a greater fallacy. Take the simplest contour filling, which may be one in an incisor tooth with a living pulp, and it goes without saying that the first pieces of gold should be securely fastened to a given point or points to insure non-tipping. Be the cavity ever so well prepared for retention of gold, a point or two in the thicker portions of the labial or palatal wall and one near the cutting edge, or at least a properly shaped groove, is indispensable for the prevention of leakage into the cavity. Other cavities in living teeth call for the use of retaining points—not in the direction of the pulp—for the pinning of gold to the abraded ends of the teeth. Many times pulpless teeth are rendered more useful by the drilling of retaining pits in the proper direction, saving strength of tooth structure and avoiding the loss of profile walls whose cutting away would disfigure the countenance, by restoration with gold. Operations on the teeth with gold under the most favorable circumstances are transitory instead of permanent, and it were death to estheticism to avoid the use of pits or points as an aid to perfection of mechanical impaction of gold to prevent unsightly discoloration, in order to say that all cavities should be prepared in a manner that renders unnecessary the boring or drilling of pits, or points which will permit of the pinning of gold to a cavity. Selah!—*Dental Review.*

STERILIZED MILK.—So-called “sterilized milk” by no means always deserves its name, in some cases being much fuller of germs than ordinary unboiled milk fresh from the cow. Herr Kohlmann, of Leipsic, on subjecting two specimens of milk, sold as sterilized, to examination, found that one of them really was so, no germs being discoverable; while the other specimen contained 350,000 germs per cubic centimetre. For the purpose of comparison, other examinations were made, and it was found that a sample of fresh milk bought in the street contained about 160,000 germs per cubic centimetre—that is to say, less than half the number of the second sample of so-called sterilized milk. Milk boiled in the kitchen contained 158 germs per cubic centimetre; distilled water, 1,064; and water from the Hofbrunnen, 12,000. Herr Kohlmann suggests that the failure of whatever process was used to sterilize the milk may have been due either to water having been mixed with the milk before the process was commenced, or perhaps to too long a time having been allowed to elapse between milking and sterilizing. This last point exercises a very great effect, as is shown by Freudenreich’s observations. He found that milk which when received contained only 9,300 germs to the cubic centimetre, after being kept for three hours at 60° Fahrenheit contained 10,000; after six hours, 250,000; and after twenty-four hours no less than 5,700,000. It would therefore appear that our knowledge of the conditions under which milk may be really sterilized is at present somewhat insufficient, and that reports of the results of the feeding of infants with milk which is reputed to be sterilized must always be received with a good deal of scepticism unless specimens of the milk have been frequently examined by a competent person.—*Lancet*.

INDEPENDENT dental journals, or those published by dental dealers, can never be a question for discussion, as an independent dental journal never existed, and never will exist, owing to the condition of the money market. An endowment of \$50,000 will not issue, permanently, 1,500 copies of a 48-page monthly without the support and assistance of *advertiser*, *subscriber*, *dead-head list*, and the profession generally. As we depend on these, we cannot say anything about an advertiser for fear the advertisement will be withdrawn. If we offend a subscriber, he may discontinue. If we do not send free copies, we may lose a contributor, and if we say anything about advertiser, subscriber, free list or outsider, we may be harassed with a threatened libel suit. So you see, my friends, that the so-called independence in journal work is only an attempt to deceive ourselves.—*Dr. Wm. Conrad, at Banquet of Missouri Association.—The Archives of Dentistry.*

DURATION OF LIFE.—The inferior animals, which live, in general, regular and temperate lives, have generally their prescribed term of years. The horse lives twenty-five years, the ox fifteen or twenty, the lion about twenty, the dog ten or twelve, the rabbit eight, the guinea-pig six or seven years. These numbers all bear a similar proportion to the time the animal takes to grow its full size. But man, of all the animals, is the one that seldom comes up to his average. He ought to live one hundred years, according to his physiological law, for five times twenty are one hundred; but, instead of that, he scarcely reaches, on the average, four times his growing period; the cat six times, and the rabbit even eight times the standard of measurement. The reason is obvious—man is not only the most irregular and the most intemperate, but the most laborious and hard worked of all the animals.—*Exchange.*

DR. REHFUSS suggests a plan by which a powerful movement against obnoxious patents may be inaugurated within a few weeks. The "Central," following its usual energetic policy, appointed a committee, with power, to carry out Dr. Rehfuss's suggestions. The committee consists of Dr. S. C. G. Watkins, chairman; Dr. B. F. Luckey, Dr. W. L. Fish, Dr. C. S. Stockton, Dr. A. R. Eaton, Dr. Chas. A. Meeker, Dr. R. M. Sanger, Dr. F. A. Levy, Dr. W. P. Richards and Dr. Geo. E. Adams. We do not feel at liberty, without the consent of the committee, to tell, thus publicly, what action it intends to inaugurate. It may be found wise to operate secretly, at first. We may state, however, that a circular letter will shortly be addressed to all societies, asking for indorsement and co-operation. We wish the movement success.—*Dental Mirror.*

MANIA FOLLOWING ETHER.—Dr. Gorton, Superintendent of the Butler Hospital for the Insane, publishes a history of two cases. One was the case of a boy fourteen years of age who took ether before having teeth extracted. He had an attack of subacute mania followed by dementia. The second was the case of a young lady who took ether to have a number of teeth extracted. The administration was tedious, and she was several hours recovering from the influence of the anæsthetic. In a day or two she returned to her work, but her friends noticed there was a marked change in her mental condition. She afterward became insane. The patient was improving at the time of the report. Dr. C. L. Dana has stated that several of his neurasthenic patients have dated the beginning of their nervous troubles to the administration of ether.—*American Journal of Insanity.*

THE MOST CELEBRATED TOOTH IN THE WORLD.—It may not be generally known that “the most celebrated relic of Buddha now existing is in Ceylon, namely, the dalada, or left canine tooth, a piece of discolored ivory two inches long (much too long for a human tooth). This is preserved in a small chamber in the vihara (temple) attached to the old palace of the Kandyan Kings, enclosed in nine successive bell-shaped golden and jeweled cases, each locked, and the key kept by a separate official.” This relic is probably revered by a larger number of people than any other relic in the world. Taking the two most moderate estimates of writers on the subject of Buddhism, Sir Monier-Williams reckons the number of Buddhists at one hundred millions; but Dr. Happer, an experienced American, estimates that there are only seventy-two and a half millions. Some writers have fixed the number at five hundred millions, but this is now considered a great mistake.—*The World's Religions*.

WE LEARN from the *Daily Telegraph* that dentists in Lille are much exercised in their minds at the present moment respecting a decision given in a case where one of their number was defendant before the Correctional Tribunal. A young lady—anæmic and of nervous temperament—went to him to have a tooth extracted, and for an anæsthetic he dosed her with cocaine. She expired while under its effects. The dentist was then charged with causing her death. He was acquitted by the Tribunal, which, however, fined him 12s for illegally practicing medicine, laying it down that anæsthetics could only be administered by properly qualified doctors. The dentists fear that this prohibition will cause them to lose many of their clients—ladies especially—who will not submit to tooth-extraction without the soothing influence of some subtle pain-killer. They demand the repeal of the law refusing to dentists the right of administering any anæsthetic whatever; but it must be confessed that the case in question is hardly calculated to dispose the Legislature to view their contention with favor. One of them complains that according to the Code at present in force, “painless dentistry” is forbidden to practitioners in France, unless under the supervision of a duly qualified medical man, a proviso which adds considerably to the cost of tooth extraction.—*The Journal of the British Dental Association*.

OLZEWSKI, the Russian physicist, has succeeded in liquefying sufficient ozone to determine the boiling point, which is—159° Fahrenheit. The liquid ozone is dark blue in color, and is nearly opaque in a layer of a tenth of an inch thick.

THE DENTAL ADVERTISER.

CONDUCTED BY THEO. G. LEWIS, D. D. S.

BUFFALO, N. Y., JANUARY, 1891.

"THE DENTAL ADVERTISER" FOR 1891.

Away back some twenty-two years ago, when dental journals were not as numerous as at the present day, a new and almost unknown firm decided to issue a quarterly journal for the avowed purpose of advertising their then limited productions. Accordingly, in August, 1869, a modest sixteen-page periodical was issued and christened "THE DENTAL ADVERTISER." From an advertising journal it has gradually become a journal for dentists, and we now refer to it with pride, and assert that it is the best quarterly dental journal in existence in every respect.

The editor, who has had charge of the venture from the first, is led to crow over the success, from the fact of receiving so many complimentary letters with subscriptions for the current year. He would, however, be pleased to receive more complimentary letters containing subscriptions, so that he can relieve himself of more commendable exultation; and that reminds him, on glancing over the list of dentists to whom this journal has been sent occasionally for twenty-one years, that there are some non-appreciative members in the dental profession, who perhaps have forgotten that it takes money, time and brains (?) to publish a journal, and think that the small sum required from them would not help the financial department to any great extent. Try its effect on us, send the subscription price, and we promise to give you its worth in every issue. We propose to make THE DENTAL ADVERTISER for 1890 worthy a place in any library.

LIBRARY OF DENTAL LITERATURE.

For some years the editor of the DENTAL ADVERTISER has been collecting dental periodicals and dental literature of every description, for the purpose of forming a library that will probably some day find its final resting place in some public institution, where it can be of use to future generations. He is indebted to many old friends for old

journals, transactions, and dental books, which, together with extensive purchases, already make a library of considerable extent and great value.

In connection with this subject we print a letter from an old friend from whom we solicited contributions to our library :

"Dear Doctor—I send you by express this day the dental literature which has accumulated in my office during the last forty years. Since beginning to gather it together to send away I have glanced through some of the older articles hastily, and I must confess to a feeling of sadness in parting with such old and familiar friends. But I know they have done their work for me, and I cheerfully pass them on for those coming after. And while very willing to admit and fully acknowledge the great advance in acquirements and modes of practice in our profession in all those years, I must also bear testimony against the intemperate zeal with which so many jump on to the latest 'fad' and ride it rough-shod over their more conservative or less credulous brothers. I expect there will be new discoveries in the dental art even after our day.

"Thanking you for your kindness, and hoping my contribution will be of service to you in your undertaking, (I don't know who else I would spare them to), I am

"Very truly yours, "J. B. NICHOLS."

"POTSDAM, N. Y."

We know that dentists usually have stored away a quantity of miscellaneous dental literature, comprising periodicals, society transactions, and obsolete editions of dental works, and as this library is not intended solely for private purposes, the editor of this journal would ask for contributions from dentists who may feel like benefiting their professional brethren in the future.

WHY DENTISTS DON'T DIE RICH.

We happened to be glancing over a trade paper some time since, and read an editorial regarding the unprofitable manner in which some conduct their business. We have plagiarized the article, but altered it slightly to fit the dentist's side of the question.

In the foremost ranks of unwise men should be placed those dentists who so far ignore true business principles and the spirit of fair dealing as to take work at prices which will not pay the actual cost of its execution. If a truthful history of dentistry in this country for the past ten years or more were to be written, it would be punctuated by many instances of disaster overtaking those who have striven to increase their business without taking profits into consideration. Suppose that a dentist has \$5,000 invested, which includes his pupilage, college expenses

and office outfit. Judiciously placed in bonds or other securities, this sum would realize for the investor, say \$250 per annum. His services, if employed by others, ought to increase his income to \$1,000 or thereabouts. In business for himself, this earning power of his own labor and capital ought never to be lost sight of. Then add ten per cent. annually for depreciation in the value of his office; \$300 for rent; \$500 for stock; \$150 for repairs, heating, and exceptional expenses, and he has a total of \$2,450, entirely outside of living expenses, which he must consider in making estimates. That this is not an exaggeration every dentist who is honest to himself will admit, but how many there are who disregard their own interests, and slash prices at the instigation of that unconscionable devil, Competition, to the extent of self-robbery. However annoying it may be to lose old patients, or whatever the gratification of keeping business from a competitor, it is silly, senseless, and suicidal in the end, to wear out brains in the effort to hold or gain profitless patronage.

It is wiser, by far, to do a small and profitable business, looking for patients among those who can appreciate good work and are willing to pay fairly for it, than to fall into the bad way of exchanging an old dollar for a new one, simply to keep yourself employed. The latter course is a losing game, and an injustice to the patient, to one's self and to one's competitors.

VULCANIZER EXPLOSIONS.

We learn that by the explosion of a vulcanizer, a dentist recently suffered such a severe injury of his right hand that he will be disabled for weeks, and it is doubtful if he ever regains his former command of it. An examination of the fragments of the vulcanizer—which was quite old—showed that it had wasted away by corrosion until its sides were, in places, almost as thin as paper; and if any pains had been taken to ascertain the fact, its dangerous condition would have been discovered long ago, and the accident probably averted.

Without presuming to inquire into or further report the circumstances attending this deplorable affair, we extend our sincere sympathy to the sufferer, and take occasion to again say a few words concerning the care of vulcanizers, hoping to possibly avert a similar calamity from happening to some other dentist who, supposing that the vulcanizer he has used for ten or fifteen years is "as good as new," is still using it, possibly without a safety apparatus, and at such a temperature that he can vulcanize in forty-five or fifty minutes.

Vulcanizers fail from corrosion, which seems to take place at the water line more rapidly than elsewhere. It progresses more rapidly in some parts

of the country than others, possibly on account of impurities in the water, but it is always to be expected—is indeed inevitable, and the vulcanizer should be frequently examined after it has had eight or ten years' use. In the case referred to, the pot was badly corroded near its mouth, within an inch of the packing joint. The presumption is that the water level was usually at this point. The section of a condemned vulcanizer pot, shown in *THE DENTAL ADVERTISER* for July, 1890, illustrates the manner in which the metal wastes away. In this case the bottom seems to have remained intact, and little metal is lost from near the mouth of the pot; but the middle and the sides show an alarming amount of corrosion. Yet the pot from which this illustration was made was used without accident, although its sides were in some places no thicker than a visiting card. Nay, more! we have one now in our possession, which is corroded through, and actually began to leak before its owner thought proper to discard it.

The best way to ascertain the condition of the metal in a vulcanizer is by sounding it with a small hammer. An ordinary riveting hammer, or a tack hammer, will answer the purpose. When a vulcanizer pot is strong, a light blow from such a hammer upon any part of it will rebound. If it is weakened by corrosion, a blow upon a weak part will give the impression of striking lead. There will be but little rebound, and the difference in the sound of the blows between the weak and the strong parts is characteristic and very easily recognized. Very light taps, not strong enough to dent or otherwise mar the copper, are amply sufficient for the purpose of ascertaining its condition. We advise every dentist who is using an old vulcanizer to occasionally put it to this test, to assure himself of his safety. If the sides of the pot feel soft and yielding, it would better be exchanged for a new one.

Be the vulcanizer as strong as it may, if there are no means provided by which the steam pressure will be relieved when it becomes excessive, a few moments' forgetfulness may at any time render it dangerous just in proportion to its strength. Reputable manufacturers always provide safety apparatus with their vulcanizers, but many dentists are in the habit of plugging them up, or otherwise putting them out of order, not realizing the risks they run by such action.

We have never known of an instance in which an explosion has occurred when the safety apparatus has been kept in good order, unless corrosion had progressed so far as to render the weakness of the vulcanizer obvious to a very slight inspection. We would therefore advise dentists to put up with the occasional blowing out of a disk, rather than to incur the risks which inevitably follow putting the safety apparatus out of order.

G. B. S.

A NEW METHOD OF MAKING DIES.

Dr. Theo. F. Chupein, of Philadelphia, editor of *The Dental Office and Laboratory*, suggests a method by which a lead counter-die can be used in connection with a Haskell Babbit-metal die. As is well known, the Babbit-metal melts at a much lower temperature than lead, and if an attempt is made to pour lead—however chilled it might be before pouring—on a Babbit-metal die, the two will adhere. To overcome this annoyance, Dr. Chupein uses a Lewis Moulding Flask. The cone-shaped top is inverted and filled with sand; the thin plaster cast—having previously been *thoroughly* dried—is then laid on it, the ring put in place, and the lead poured in. When the lead is cold, the plaster model and sand are removed, the flask reversed, and the Babbit-metal poured into the lead counter through the cone-shaped orifice. In short, this method is reversing the usual way of making dies and counter-dies, and will save considerable trouble in overhanging models, where it becomes necessary to make cores in order to draw the model out of the sand.

A FORTY-YEAR-OLD DOCUMENT.

We are indebted to Dr. L. P. Haskell, of Chicago, for the original license granted to him by Dr. John Allen, then of Cincinnati, for the right to construct continuous gum work. The document is printed on paper of a blue shade, now begrimed by age, of fool's-cap size, and dated "1st of Nov., 1851." The money consideration was one hundred and fifty dollars. It is altogether a unique document, and will be preserved with other valuable curiosities in our library. Dr. L. Pomeroy Haskell—as he was then called—resided in Boston, Mass., at the time, and we are given to understand was the only one of the licensees in that city who really paid the required fee, the others—well, they were very much like the dentists of this day—simply protested and kept right on using the formula.

THE ARTICLE "What Next?", originally printed in the DENTAL ADVERTISER, in July, seems to have excited considerable criticism. The October issue contained two, and this issue three more criticisms. The author of "What Next?" writes: "No one has more sympathy than myself for the poor and struggling student. No one—at least no rational person—would maintain that gold puts knowledge into the fool's head. The point is, that those who have means to protect themselves are not tempted to do unwise things, for in professional matters a man to be successful must take a long look ahead. Poverty to the ambitious is a great drawback."

WE would again direct attention to Catching's Compendium of Practical Dentistry, which is just about ready. The price to subscribers is \$2.50, to be paid when the book is ready for delivery. Address, Dr. B. H. Catching, Atlanta, Ga.

THE Rev. Dr. Abbott recently delivered a lecture in London, on "Illusions," in which he discriminated between illusion and delusion. The former was, he said, the necessary influence to which healthy human nature was subject, and through which we reached truth, whereas delusion was a sign of diseased nature. Browning had spoken of the illusions with which he was concerned "as the midway help" to the attainment of truth. We were subject to a sort of atmospheric illusion in the attainment of even physical knowledge. There is the illusion of sound. We do not hear what is, but what was. So with sight, though light travels much more rapidly than sound. So it was with the setting of the sun and other natural phenomena. So the pole star was not where we think we see it now; we see it where it was forty or fifty years ago. There were stars still more distant, and it might be that the inhabitants of some star were now looking at the battle of Hastings, and wishing success to one side or the other. All these were illusions, or behindhand observations.

IN AUGUST LAST, the *Dental Mirror* announced a "small cloud," that was developing into a veritable squall, on the horizon of dental journalism. We have been watching watchfully, and standing on the tip-toe of expectation, for the predicted cloud-burst. Nothing has occurred as yet, except the change in the editorial management of the *International*. Perhaps the *Dental Mirror* expected Prof. Sudduth to fight—instead of taking flight; but the gallant professor is not so flighty as to allow his enemies to squelch his professional ardor, and may be heard from in the near future.

IN CONNECTION with Dr. F. W. Low's article, "Phagocytosis," we would ask a careful reading of an article from the *Medical Bulletin*, entitled "The Mechanism of Infection."

DR. F. T. VAN WOERT, of Brooklyn, Chairman of the Publication Committee of the Dental Society of the State of New York, announces that the committee deem it to the best interests of the society to postpone publishing the transactions for the year 1890. A full explanation of such action will be given in the annual report of the committee, May, 1891.

DR. SAWYER, of Orange, New Jersey, recently exhibited a porcelain and gold crown which he had been compelled to remove, with the root to which it was attached, because of necrosis which had developed from faulty construction and application of the crown. A similar case involving two roots carrying a bridge of four teeth came under our notice a short time since.

AT THE last meeting of the New York State Dental Society, the Committee on Dental Law reported that in order to enforce said law, it would be necessary to raise from two to three thousand dollars per annum, for the next five years. As there are about 3,000 registered dentists in this State, it was proposed that an appeal should be made to them to contribute one dollar each for the purpose of creating a fund for enforcing said law; but, as the committee cannot reasonably suppose that every dentist in the State will contribute, they ask those who feel interested in maintaining our professional standing, to contribute whatever amount they can afford. It is earnestly desired that an immediate and liberal response will be made, as, with sufficient funds, the committee will be enabled to enforce the dental law to the entire satisfaction of the profession. Contributions to the "Dental Law Fund" can be sent to any State Censor, when it will be forwarded to the treasurer of the State Dental Society.

THE dentists of Buffalo entertained Professor W. D. Miller, of Berlin, on the evening of October 2d, at the Iroquois. The occasion will be long remembered by those present as being one of the most enjoyable of the many banquets given by the generous dentists of this city.

IN BLEACHING a tooth, *The Dental Review* suggests the washing the cavity first with ammonia, then use peroxide of hydrogen, introducing it on cotton or lint, with wood, bone or ivory tweezers, or points.

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CORRESPONDENCE.

Editor DENTAL ADVERTISER: I find the following in the ADVERTISER for October, 1890:

CLEAN VS. UNCLEAN.

John Allen gave to dentistry the most cleanly and beautiful denture ever put into the human mouth, and he has given to humanity and the world a character and life equally as clean and beautiful.—*Southern Dental Journal*.

How about the characters of the dentists who from about 1851 have infringed the patents of Dr. Allen, and appropriated to their own use the profits of the "most cleanly and

beautiful dentures?" It will astonish the filchers to know that the venerable Dr. John Allen, of New York, has been impoverished by their failure to do him pecuniary justice. Shall we call them unclean, in contrast to Dr. Allen's clean and beautiful life?

When Dr. Allen sent his agent to Boston to sell office rights for his valuable invention, my partner, Dr. D. H. Goodno, and myself purchased a right for which we paid \$150. Dr. Hitchcock paid \$300, others \$50 to \$100. It was learned afterward that this agent never paid over to Dr. Allen any of his receipts. At this time the patent was in litigation, but after it was decided in Dr. Allen's favor, he generously gave it to the profession.

This being the case, I can hardly see how "Dr. Allen has been impoverished by their failure to do him pecuniary justice." I do think, however, that Dr. John Allen ought to receive from the profession some substantial token of appreciation of his generosity in thus giving to it the most valuable invention in Prosthetic Dentistry ever known. Will not some of his friends in New York set the ball in motion?

I might further mention that of the twelve or more dentists in Boston and vicinity, who purchased rights of said agent, all, with the exception of myself, abandoned it as worthless in less than a year. I have used it ever since, and still consider it the most perfect denture for full sets ever devised, as it has fully stood the test of time. *All honor to Dr. John Allen!*

L. P. HASKELL.

CHICAGO, October 6, 1890.

NORTH TROY, Vt., Nov. 30, 1890.

Editor DENTAL ADVERTISER:

In looking over some old boxes in my laboratory recently, I found two sheets of the old American rubber that must have laid there twenty years or more. I used it on two dentures. The rich brown color, thickly mottled with a darker shade, and the high polish it readily took, gave me the greatest satisfaction. It is very much tougher than the modern rubbers. Why don't they manufacture as good now? Is it a lost art? Dentists who used the American rubber thirty years ago, regret that they cannot get as good rubber to-day. I think it the only rubber on the market at that time.

I get very satisfactory results in vulcanizing in the following manner: I use a Hayes Vulcanizer. I let the heat run up *very* slowly to 280°, and hold it there two hours, then run it up to 320°, for forty minutes, and let it cool off without assistance. In this way I get a very tough plate without shrinkage.

I have recently used seven different makes of dental rubber, for the purpose of getting at the best. The results I will not mention, only

add that I am using exclusively the Imperial and Giant rubbers. They approach nearer to the American rubber than any I have used.

I have experimented with dry and steam heat. The latter gives me better satisfaction, the plates are very much stronger, and of a more even temper.

DR. G. H. FULLER.

DIED.

In Phoenix, N. Y., September 3, 1890, B. T. Mason, D. D. S.

In Georgetown, Ohio, September 8, 1890, William H. Woodward.

In Milford, Delaware, September 11, 1890, Samuel Everett Marshall, D. D. S., in the twenty-ninth year of his age.

In Chicago, Ills., October 21, 1890, Dr. Joseph Deschauer, in the sixty-ninth year of his age.

In Chicago, Ills., October 21, 1890, Dr. C. W. Lewis, in the thirtieth year of his age.

In Lowell, Mass., October 24, 1890, Dr. Gustavus A. Gerry, in the sixtieth year of his age.

In Philadelphia, Pa., November 13, 1890, William W. Fouché, D. D. S., in the seventy-seventh year of his age.

BOOK NOTICES.

A COMPEND OF DENTAL PATHOLOGY AND DENTAL MEDICINE, containing the most noteworthy points upon the subjects of interest to the dental student. By George W. Warren, D. D. S., Clinical Chief, Pennsylvania College of Dental Surgery. Illustrated. Philadelphia: P. Blakiston, Son & Co. 1890.

This book is No. 13 of Blakiston's ? Quiz Compendis ?, and is uniform with others of the series. This little volume is in reality a synopsis of the lectures given by the several professors, and must be of great service to the student, enabling him to memorize the substance of the lectures without recourse to badly taken notes. It is a fine example of "boiling down" to the tangible.

DENTAL SURGERY FOR MEDICAL PRACTITIONERS AND STUDENTS OF MEDICINE. By A. W. Barrett, M. B. (Lond.), M. R. C. S., L. D. S. E., Dental Surgeon to the London Hospital., etc. Second Edition, with illustrations. Philadelphia: P. Blakiston, Son & Co. 1890.

The ignorance of the medical profession regarding dental surgery is proverbial, at least in this country, and we would judge from the necessity of publishing a book on dental surgery especially for the use of medical practitioners, that English surgeons are not much above their American brethren in a proper understanding of the science of oral surgery. Of course, instructions in filling or crowning teeth, or operations falling strictly within the province of the dentist, are only mentioned incidentally. One would think that with the strictly mechanical portion left out, that but little would remain; this is not so, as chapters on the teeth generally, the first and second dentition, abnormalities and irregularities,

dental caries, tooth-ache, pyorrhœa and injuries to the teeth, together with a chapter on anæsthetics and extraction of teeth, form a volume of great and general interest to the medical practitioner. The book is finely illustrated and beautifully printed on English paper.

THE ESSENTIALS OF MEDICAL CHEMISTRY AND URINALYSIS. By Sam. E. Woody, A. M., M. D., Professor of Chemistry and Public Hygiene, etc., etc., in the Kentucky School of Medicine. Third Edition, revised, enlarged and illustrated. Philadelphia: P. Blakiston, Son & Co. 1890.

The following extract from the preface sufficiently explains the scope and purposes of the book: "As long as the effort is made to crowd the whole science of medicine into a five months' course, the hurried student must have such a book as this to present the essential facts, so that he need not wade through the more exhaustive text-books, or be compelled to take voluminous notes, which are unavoidably inaccurate and unsatisfactory. The selection of material and the plan of presentation is the outgrowth of the author's experience as a general practitioner, and as a teacher of medical chemistry for the past twelve years. The subjects treated are so numerous that the descriptions are necessarily brief, but the principles of the science and the application of the facts to medicine have been stated more fully."

THE DENTAL LABORATORY. A Manual of Gold and Silver Plate Work for Dental Substitutes, Crowns, etc., Regulating Appliances for Irregular Teeth, Repairing, etc., to which is added Manipulations in Vulcanite and Celluloid, Laboratory Hints, Suggestions, Fixtures, etc. By Theodore F. Chupein, D. D. S. Philadelphia, Pa. Johnson & Lund. 1890.

In the main, this book is the outcome of a series of excellent articles by Dr. Chupein, that have appeared from time to time in the *Dental Office and Laboratory*. It is a practical work in every sense of the word, and is written as though the author was giving oral instructions in the several methods mentioned. As to the minor details of manipulation nothing seems to have been omitted. If the instructions given as to the proper fitting up of a laboratory were followed, there would be less unsightly rooms attached to the majority of dental offices, dignified with the name of laboratories.

A TREATISE ON THE IRREGULARITIES OF THE TEETH AND THEIR CORRECTION, including, with the author's practice, other current methods. Designed for practitioners and students. By John Nutting Farrar, M. D., D. D. S. Illustrated with nearly 2,000 engravings. New York, 1890. (Address, 1271 Broadway, New York.)

This is a ponderous volume, royal octavo, beautifully printed and illustrated. It would be impossible in our limited space to adequately describe the work, much less to do justice to the author's various methods of correcting irregularities. This volume represents years of careful study, research and experience, and can be appreciated only by a reading of the book. The work is to be in three volumes, the one under consideration being Volume I., which is divided into fourteen parts and sixty chapters. The first five parts include History, Etiology of the Irregularities of the Teeth, Philosophy of the Author's System, and Nomenclature. Part VI. is an explanation of the principles in the construction of Regulating Appliances, and is very interesting as it describes plates, inclined planes, clamp bands, wedges, separators, spring-jacks, screw-jacks, swivel-jacks, tail-jacks, cantilever devices, and devices for turning teeth, etc. Parts VII. and VIII. relate to Retaining Devices; Part IX. to the Philosophy of the Application of Force; Part X. to the Eruption of Teeth; Part XI., Antagonism of Teeth; Parts XII. and XIII., Correction of Teeth by Grinding, and Part XIV., Extraction of Teeth for Prevention and Correction of Irregularities. It would seem by the above that the subject

would be exhausted in Volume I., but a glance at the table of contents of the succeeding volumes convinces us that Volume II. will be even more interesting. It is advisable to subscribe to the entire set, as, after having read the first volume, no one will be content unless possessed of the complete treatise. It is a remarkable work, and the wonder is that so much can be written on a subject avoided and so little understood by the majority of dentists. We have made a specialty for twenty-five years of the correction of irregularities of the teeth, and can therefore appreciate the immense value of Dr. Farrar's magnificent work.

THE COSMOPOLITAN MAGAZINE for December (Christmas number) is really a superb number.

It contains a feature never before attempted by any magazine, consisting of 123 cartoons from the brush of Dan. Beard, the now famous artist, who did such wonderful illustrations in Mark Twain's book, "The Yankee at the Court of King Arthur." These cartoons are placed at the bottom of each page of the magazine, and take for their subject, "Christmas during the Eighteen Centuries of the Christian Era," with variations, showing the way in which we modern Christians carry out some of the chief texts of the Christian Gospel. Above, and at each side of the page, is a quaint border, the whole effect being novel and extremely pleasing. An excellently illustrated article is one on Teapots, by Eliza Rubamah Scidmore. Literary Boston is treated with numerous portraits, and an article which comes with the ninetieth birthday of Von Moltke, sketches the life of the great Field-Marshal in an interesting way, and is by Gen. James Grant Wilson. Elizabeth Bisland has one of her charming articles. The Christmas issue contains 228 illustrations, nearly double the number that have ever appeared in any illustrated magazine.

THE PHYSICIAN'S VISITING LIST FOR 1891. Fortieth year of its publication. Philadelphia: P. Blakiston, Son & Co.

This list is published in four editions, viz.: regular, interleaved, perpetual and monthly, and was years ago conceded to be by far the best Visiting List published. The edition for 1891 is improved in many respects, making it a book of ready reference as well as a record of patients.

DESCRIPTIVE ANATOMY OF THE HUMAN TEETH. By G. V. Black. M. D., D. D. S. Published by The Wilmington Dental Mfg. Co., Philadelphia, Pa., 1890. Price, \$2.50.

Dr. Black has been known to the dental world for many years as an authority on dental anatomy, and it is gratifying to his numerous friends that he has put his investigations and teachings in book form, so that they can have the benefit of them. We confess to a feeling of incompetency to review the book in a critical light; in fact we are not equal to the task, and therefore ask those interested in dental anatomy to read and criticise for themselves. It is a book that should find a place in every dental library.

IRREGULARITIES OF THE TEETH AND THEIR TREATMENT. By Eugene S. Talbot, M. D., D. D. S., Professor of Dental Surgery in the Woman's Medical College; Lecturer on Dental Pathology and Surgery in Rush Medical College, Chicago. Second Edition, revised and enlarged. With 234 illustrations, 169 of which are original. Philadelphia: P. Blakiston, Son & Co. 1890.

Talbot's Irregularities has become, in a measure, a text book, and as such is familiar to students and professors, and it would appear from the demand for a revised edition that the reputation of the author had extended beyond the confines of dental colleges. As is well known, Talbot's book is not exclusively Talbot, but also contains gleanings from the fields of other ingenious mechanics who have studied the art of regulation to successful issues. It is therefore especially valuable in that it presents so many solutions of difficult cases from various sources. The Second Edition has been greatly enlarged and improved.

PRACTICAL DENTAL METALLURGY. By Thomas Fletcher, F. C. S., Warrington, England. Third Edition. Mackie & Co., Warrington. 1890.

On the appearance of the second edition of this deservedly popular book, we gave it an extended notice, and as the third edition is identically the same, with the exception of a few minor corrections, there remains but little to be said of this convenient adjunct to a dental laboratory. The reputation of the author is a guarantee of the contents of the book; in fact every page is the reflection of a practical mind.

A COMPEND OF HUMAN ANATOMY, INCLUDING THE ANATOMY OF THE VISCERA. By Samuel O. L. Potter, M. A., M. D., Professor of Theory and Practice of Medicine in the Cooper Medical College, of San Francisco; author of "A Handbook of Materia Medica, Pharmacy and Therapeutics," "An Index of Comparative Therapeutics," "A Compend of Materia Medica," and of the Lea Prize Essay of Jefferson Medical College, on "Dyslalia, a Study of Speech and its Defects," Late A. A. Surgeon, U. S. Army. Fifth Edition, revised and enlarged. With 117 wood engravings; also an appendix containing numerous tables, and sixteen lithographic plates of the nerves and arteries. Philadelphia: P. Blakiston, Son & Co. 1890.

This compend is No. 1 of the excellent series of hand books issued by the publishers. It is based on Gray's Anatomy, and to this fifth edition has been added an appendix of forty-three pages containing the author's original and complete set of tables and plates of arteries, nerves, etc. These tables will prove of great value to the student and practitioner who desire a comprehensive view of these complicated parts of the human organism.

THE OPEN COURT PUBLISHING CO., of Chicago, will publish, immediately, in two handsomely bound and printed volumes, a new, authorized translation of Gustav Freytag's well-known novel, "The Lost Manuscript." This is regarded by critics as the most charming of the famous German writer's works.

WORTHINGTON CO., 747 Broadway, New York, announce for immediate publication, No. 15 in their International Series, "A Sister's Love," by W. Heimburg. Translated by Margaret P. Waterman. With photogravure illustrations. Half morocco, \$1.25; paper, 75 cents. This story is one of the most interesting yet written by this favorite author, and fastens the reader's attention from beginning to end.

BOOKS RECEIVED.

TREATMENT OF FRACTURES OF THE MAXILLE. By Kasson C. Gibson, New York.

THE MONIST: A QUARTERLY MAGAZINE. Published by The Open Court Publishing Co., Chicago, Ills.

TRANSACTIONS OF THE INDIANA STATE DENTAL ASSOCIATION. Thirty-second Annual Meeting, held at Lake Maxinkuckee, June, 1890.

TRANSACTIONS OF THE AMERICAN DENTAL ASSOCIATION. Thirtieth Annual Session, held at Excelsior Springs, Missouri, August, 1890. Published by H. D. Justi, Chicago, Ill.

REVUE INTERNATIONALE DE BIBLIOGRAPHIE, MÉDICALE, PHARMACEUTIQUE ET VÉTÉRINAIRE. Dirigé par Le Docteur Jules Rouvier, Professeur de Clinique Obstétricale et Gynécologique à la Faculté Française de Médecine de Beyrouth, (Syria), September, 1890. There is a decided improvement in the section Odontologie over previous numbers.

HEMATOMA AURIS. By B. H. Grove, M. D., Buffalo, N. Y.

DENTAL PATENTS.

ISSUED FOR THE QUARTER PRECEDING THE DATE OF THIS JOURNAL.

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- 437,319—September 30, 1890.—DENTAL ENGINE.—E. Thompson, San Francisco, Cal.
 438,566—October 14, 1890.—DENTAL TOOL.—Frank T. Van Woert, Brooklyn, N. Y.
 439,238—October 28, 1890.—ELECTRO DENTAL HEATER.—Luther A. Faught, Philadelphia, Pa.
 439,305—October 28, 1890.—METHOD OF PREPARING ARTIFICIAL GUMS FOR DENTAL WORK.—Datus E. Rugg, New York, N. Y.
 439,427—October 28, 1890.—DENTAL TOOL HOLDER.—Cassius M. Richmond, New York, N. Y.
 11,118—October 28, 1890.—DENTIST'S BURRING TOOL.—Arthur W. Browne, Prince's Bay, N. Y. (Re-issue.)
 440,128—November 11 1890.—DENTAL ENGINE.—William G. A. Bonwill, Philadelphia, Pa.
 440,131—November 11, 1890.—ARTIFICIAL TOOTH.—Robert Brewster, London, Eng.
 440,509—November 11, 1890.—TEETH SEPARATOR.—Frelinghuysen Sawhill, Hastings, Neb.
 441,265.—November 25, 1890.—ARTIFICIAL TOOTH.—Frank T. Van Woert, Brooklyn, N. Y.
 442,070—December 2, 1890.—RE-ENFORCING Mallet FOR DENTAL PURPOSES.—Joseph L. Mewborn, Memphis, Tenn.
 442,107—December 9, 1890.—FORCEPS FOR DENTAL WEDGES.—George J. Davidson, Richmond, Va.
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THE DENTAL ADVERTISER.

VOL. XXII.—BUFFALO, N. Y., APRIL, 1891.—No. 2.

PATHOLOGICAL DENTITION.

BY JAMES W. WHITE, M. D., PHILADELPHIA, PA.

That the period covered by the first dentition is that during which the greatest number of deaths occur among children is a fact which is not disputed. It is also a fact not admitting of question that during this time, more than in any subsequent like period of childhood, important structural changes are taking place in the organization of the infant, constituting, as analogous changes in after-life are denominated, a veritable crisis or critical period. A special liability to an increased nervous susceptibility when other structural and functional changes in the economy are progressing is recognized by all medical practitioners, and is a reasonable assumption, even if not demonstrable, in the case of the infant, when such notable modifications are taking place. The wonderful mobility of the nervous system in infancy, the tendency to reflex phenomena, the liability to serious disturbances from slight causes, of organic changes from functional derangements, of dangerous reactions from local irritations, are all acknowledged, are all readily explainable, and are all urgent admonitions to the assiduous avoidance or correction of all phripheral irritations.

In view of these facts, the question whether the teething process may become a peripheral irritation is an important one. Undoubtedly, dentition is a physiological process, and under favoring conditions proceeds without any disturbance of the health of the child. Surgical or medical interference is then, of course, not to be thought of. But there are numerous cases in which the local evidences of irritation are unmistakable—cases in which the gums become tumid, tense, and shining, swollen

into little tumors over the erupting teeth ; exhibiting redness, induration, and sensitiveness to touch ; signs which in any other part of the organism would be recognized as manifestations of irritation. In addition to such local signs, the child gives indications, in fever, irritability, and wakefulness, of systemic disturbance without other recognizable cause ; the history revealing that, beginning with evidences of simple uneasiness, it has become by rapid stages fretful, cross, vindictive ; refusing to be amused, crying and screaming alternately, and thrusting its fingers into its mouth or pulling at its ears as though suffering from some overmastering excitement — the flushed face, the compressed lip, the corrugated brow, the clenched hand testifying of an unbearable torment. If relief is not afforded, what cause for wonder if there presently ensues the exhaustion of irritability, with nausea, vomiting, and diarrhoea, or other systemic complications, possibly, nay, frequently, with fatal ending ?

That a perversion of the physiological process in infantile dentition may be the occasion of symptoms such as have been described, may be inferred from the severe and protracted suffering experienced in some cases from the eruption of the sixth or twelfth year molars or of the wisdom teeth. The eruption of these teeth is certainly none the less a physiological process than is that of the deciduous teeth ; but, while as a rule the eruption of the permanent teeth is attended with little or no inconvenience, there is not infrequently considerable swelling of the gums, and pain, sore throat, earache, difficult deglutition, and severe constitutional disturbance. In these cases reliable testimony can be obtained as to the local and reflex troubles, and also as to the effect of treatment. The testimony is that when the operation of lancing is intelligently performed the relief is immediate. What is the unspoken testimony of the child ? After hours, and days it may be, of unrest, without other treatment than the lancing of the gum over one or more teeth, a child will not infrequently drop at once into a long and peaceful slumber, waking with an appetite and becoming again the joy instead of the terror of the household. What is the explanation but an acknowledgment that if dentition at a later date, though even in exceptional cases, may give rise to local distress and constitutional disturbance, it is not improbable that the same process may be the occasion of far more serious derangement in the sensitive infant, on whom local irritations act with so much greater severity than they do upon the adult ?

But the question is constantly asked : Why should the eruption of the teeth, if a physiological process, be the cause of irritation ? The answer is that when the evolution is purely physiological there is but slight irritation ; there are no morbid phenomena, and without doubt many infantile diseases have been attributed to dentition which had no relation to that process. But there are large numbers of children whose faulty

organization, dietetic management, and general environment preclude the possibility of normal functional processes. Some suffer from neglect and insufficient food ; some from too much care and over-feeding. In either case aberrations from normality are to be expected — reduction in the resisting power of the organism and increased susceptibility to depressing influences. The balance—a delicate one—being thus disturbed, functional inharmony created, there is a perversion of physiological processes which mutually react. Thus an aberration of the process of dentition may be the cause of an unfavorable modification or aggravation of a systemic disorder, or such disorder may as reasonably be deemed to exert an unfavorable influence upon dentition.

The eruption of a tooth as a physiological process includes the absorption of the tissues overlying it coincidently with the elongation of its root or roots, and the rising of the tooth in its socket. But when the advance of the tooth is more rapid than is the absorption of the superimposed tissues, the latter act as a mechanical obstacle, the tooth becomes in turn a mechanical irritant to the gums, and the usual results of a continued irritation of a tissue follow. The gums, which in a healthy state are comparatively insensitive, become exquisitely tender ; so much so that in some cases it is manifested whenever the child attempts to nurse. But this hyperæsthetic condition of the gum tissue is not to be accepted as the only nor even the chief explanation of the untoward symptoms which ensue. The backward pressure of the resisting gums upon the nervous and vascular supply of the pulp is, it is reasonable to believe, chiefly accountable for the grave disturbances of health witnessed. If such a backward pressure is conceivable—and what is there to forbid the thought?—it furnishes the explanation of an eccentric irritation, a local disturbing cause sufficient to account for any disastrous results from its generalization. Assuming, then, that the chief trouble is at the root end of the tooth and is caused by compression of its nerve, what measure promises such immediate, such complete, relief as removal of the tension? Not a scarification of the gums, still written about as though that were what is understood by lancing ; not for the purpose of blood-letting ; not for hastening the teething, sneered at by a recent writer as though that were the object sought by those who advocate the judicious use of the lance ; not as a routine practice, but simply and solely to remove tension—"only that and nothing more." The routinism which never lances is as unscientific as the routinism which always lances, and each is alike to be condemned.

While as a rule the evidences of aberration in dentition are to be found in a tumid, congested gum, it is believed that there are cases in which, though no local signs justify the diagnosis, the source of reflected trouble may depend upon the backward pressure to which allusion has been made.

Certainly many cases have been known to the writer in which were displayed not only to an exceedingly unpleasant, but to an alarming extent, evidences of an unrest which could not be accounted for except on the supposition that the little patient was suffering from toothache. Every possible investigation having failed to discover other cause for conditions and actions resembling those of cases in which dentition was evidently concerned as causative, the lancing of the gums over the teeth next in the order of eruption, and which were making themselves recognizable by the natural enlargement due to their presence, was followed by an entire and welcome change in the conduct of the child, no medication whatever having been resorted to. A child does not without cause show continuous unrest ; does not for days and nights together fail to procure reasonable sleep—the desire and effort to sleep seeming to be thwarted by fresh accessions of pain ; does not moan in its sleep and wake up with a scream ; does not resist every attempt to amuse it, treating the effort as an indignity ; does not give evidence of some persistent annoyance by pulling its hair and its ears, thrusting its fingers into its mouth and chewing on them ; does not add to such manifestations the refusal of its food, and then immediately following the lancing of its gums sink into a peaceful slumber, and on awaking give evidence of entire freedom from annoyance, without there being strong reason to believe that there was a relation of cause and effect between the lancing and the improved condition which followed. Such cases are not altogether rare, and there are good reasons for the conviction of the writer that the irritation of dentition may give rise to pain so intense and unremitting as to destroy the appetite for food, to cause wakefulness, irritability, thirst, fever, diarrhoea, congestion, convulsions and death, without the existence of a single local indication. Assuredly it would seem justifiable in the presence of symptoms such as have been described, and in the failure to account for them by any recognized cause, to give the child the benefit of the doubt—if doubt there be.

A case of severe, alarming, and protracted illness of a child about fourteen months old occurred in the household of a friend of the writer. It was attended by two prominent physicians, whose interest in the case and the undefined character of the illness led to three daily visits by one of them and a daily consultation with the other. The child grew steadily worse, as was easily recognizable by the family and admitted by the physicians. The illness had continued for nearly two weeks, and hope of its recovery was well nigh abandoned. In the middle of the night the writer, living near by, while both of the physicians in attendance lived at a considerable distance from the patient, was summoned on account of the child being in convulsions. An immediate examination of the mouth revealed, what from observation of the symptoms he had surmised,

the need of the lance over all of the first molars. This indication was promptly met, and the child was then laid upon the bed. With a long-drawn sob, as though relieved, it sank at once into a sleep which lasted for five hours, although it had not had fifteen consecutive minutes of sleep for several days previously. The following morning the child was so much better that every member of the family was convinced that the improvement was unquestionably the result of the operation. The physician did not admit it, although he did admit a rapid and complete recovery of the child. The next day terminated the consultations.

The impropriety of indiscriminate lancing need not be argued; it is self-evident. But when indicated, the arguments generally employed in opposition are puerile, if not ridiculous.

The conclusions arrived at by a recent writer concerning lancing of the gums are as follows:

I. "It is useless, *a*, as far as giving relief to symptoms; *b*, as far as facilitating or hastening teething.

II. "It is useful only as blood-letting and ought not to be used as such.

III. "It is harmful, *a*, in producing local trouble; *b*, in producing general disturbance on account of hæmorrhage; *c*, in having established a method which is too general to do specific good, and too specific for universal use."

That lancing DOES give relief to symptoms which indicate dental disturbances will not be denied by any one who has in any considerable number of cases intelligently observed. That it is useful *only* in blood-letting, is a claim that displays ignorance of the object sought in an intelligent use of the lancet in infantile dentition. That "it ought not to be used as such," (*sic!*) no one will dispute. That it produces "local trouble" or "general disturbance on account of hæmorrhage," is a position which indicates either a peculiar experience or unskillful operations, or it is a mere assumption.

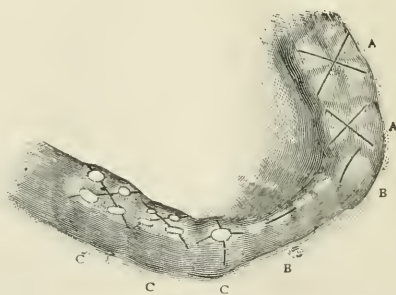
The advocates of judicious lancing do not seek to establish a "general method" nor a "specific for universal use."

In an experience of more than thirty years, during which his opportunities and experiences in this department of practice have been somewhat exceptionally large, the writer has never seen "local trouble" produced by the lance, nor a hæmorrhage which called for any interference. When there was any considerable show of blood, it was from the instant discharge of that which was no longer in the circulation and had collected in a sac-like tumor over the tooth.

Undoubtedly there are many instances in which the irritation of dentition is coincident with other disorders not dependent upon that process, and in such cases the associated derangements demand appropriate

treatment. But when the disturbance is due to tension, to the pressure of the unyielding gum upon the sensitive tissues at the incomplete foramen of the root, neither systemic medication nor scarification of the gums will avail. Scarification for the purpose of blood-letting may temporarily relieve the capillary distension, but is not an intelligent procedure, because, while involving every possible risk which might be urged as an objection to lancing, it does not relieve the pressure as does a free, clean incision which liberates the tooth. The writer has had cases in which the lancet had to be carried quite a little distance through the gum before reaching the presenting surface of the tooth, which, by the disappearance of the tumidity, was visible in twenty-four hours thereafter.

The liability to any considerable loss of blood, which it is acknowledged is possible, cannot be very great; would certainly be almost surely prevented, if threatened, by any ordinary styptic such as alum in fine powder, or by a little pressure, and such slight liability must be accepted; a wise discrimination avoiding operation in cases especially threatening either by systemic condition or family history. Medicine and surgery are alike a choice of evils, and to choose the lesser evil is the aim of all practitioners; one cannot escape risk of error by simply doing nothing. The *cruelty* of the operation is in the imagination of the objector. A child erupting its third year molars, having previously been submitted to the operation of the lancet over one or two teeth, and appreciating the relief therefrom, will sometimes come voluntarily to the physician, point out with little finger the next erupting tooth, and stand by his knee while a similar relief is afforded. A little finesse will sometimes enable the physician, having gained the attention of an infant, to lance, one after another, two or four teeth while interesting the child by artful tricks of expression or voice, without a whimper from the victim. The resistance of the cicatricial tissue is a myth. That the operation has sometimes to be repeated applies equally to the failure of a single dose to check a diarrhoea or overcome a constipation.



Showing lines of incision in lancing. A, A, over the molars; B, B, over the cuspids and incisors before eruption; C, C, C, over the molars and cuspids after partial eruption.

When either the local appearances, or the systemic condition, or both, suggest the use of the lancet, the one object should be to divide the gum so as to release the advancing tooth. The cuts should therefore be made with special reference to the form of the erupting tooth, and sufficiently deep to reach the presenting surface. The incisors and cuspids need only a division in the line of the arch. The molars require a crucial incision, at once easier of performance, and more effective than a right-angular division—the centre of the crown, as near as can be determined, indicating the point of decussation. The partial eruption of a cuspid or molar does not lessen the pressure upon or by the gum-tissue. The cone shape of the cuspid maintains the pressure by the inclosing ring, which should be severed on the anterior and posterior as well as on the lateral surfaces, if a question as to the relation of its eruption to reflex troubles is to be settled. So also the points or cusps of a molar may have erupted, and yet the resistance of the gum-tissue remain operative, and require a severance by crucial or circumferential incisions to release it. The illustration shows the approved methods of lancing over the different teeth.

ON MAKING CAVITIES IN ARTIFICIAL TEETH FOR GOLD FILLING.

BY OLIVER P. LUND, M. D., D. D. S.

Drilling, excavating and preparing a cavity in a porcelain tooth is a bit of practical dentistry that the profession has not yet given a warm welcome and recognition as a “highly interesting operation.” So it is generally relegated to the kind attentions of the dental supply house; the dentist very properly being unwilling to operate where the only person who could possibly be hurt is himself. At least so the laity would say if they knew aught about it.

Nevertheless I have found upon investigation that there are “store teeth” occasionally which suffer excruciating torture in the hands of unskillful operators, or through unwise directions being given; and it is with the purpose of alleviating such sufferings, as well as to detail a few ideas which may be of value, that this article is written.

These cavities and fillings are becoming more and more popular. They please the patient, improve the natural appearance of the work and bring a nice addition to the practitioner’s honorarium. It seems to be so easy to mark the place, send and have the cavity drilled and then fill it under

the most favorable circumstances. But right here does the devoted fang sometimes bite off an ell of trouble for its intending anatomist, so that some useful hints, gathered from a considerable experience with this species of *dens hominis*, if not *dens humanus*, may save a great deal of trouble, if not future mortification.

If the dentist would take the trouble to drill the cavities himself, provided he could spare the time; and would get the appliances for doing so, which are but little expensive, he would avoid delays, risk of breakage in the mail and save the cost of the work and postage. Of course if he has to order the tooth or select it himself in the depot, that is a different case, or certainly if a tooth has to be made to order, the cavity can be drilled before it is burned.

But in any case, in order to save our stony-hearted patient from unnecessary abuse, the size, shape and position of the cavity is of first importance. Here is where the first error is apt to be made by not taking into consideration the difference between a natural and an artificial tooth in shape and structure. The object, of course, is to have the filling show well and look natural, so that it is naturally placed upon the side of an anterior tooth. In natural teeth, however, cavities are generally more extensive upon the palatine surface, and reach around to a less degree if at all upon the labial surface. Or where they are smaller they may be confined to the approximal surface entirely.

Now in endeavoring to imitate this, many mark their cavities to be drilled entirely in the approximal wall, overlooking the fact that artificial teeth, especially gum teeth, are necessarily much thinner than natural ones, and that porcelain is a more brittle material than dentine. Such a cavity, penetrating from the side of a porcelain tooth, must leave very thin and brittle labial and palatine walls, and the tooth may break in the filling or afterwards in the mouth of the patient. Unless the tooth is quite thick and bulky the cavity should be allowed to come more toward the labial surface. Penetrating from this angle it will allow stronger lateral walls; certainly as it shows more prominently it is usually desired there, but occasionally not. It need not extend far on the face of the tooth but should not be entirely limited to the side.

Again, some patients desire to have the cavity show as much as possible, and for that reason wish them to be very near the cutting edge. This is a great mistake in a small or thin tooth, and may be carried too far in a large one. The more the cavity penetrates toward the thin cutting edge, the more the tooth is weakened in a manner which porcelain will not stand, and ill results may follow. The cavity must be undermined and some of this must go further toward the cutting edge, exactly as in natural cavities in this situation it is seldom possible to get along without a small pit or undercut in this lower angle.

For these same reasons cavities should not be too large and infringe too much on the tooth material. The patient may want a big filling showing but the size and shape of the tooth must be considered in regard to what loss of material it will allow. From an esthetic point of view a tooth is considered disfigured by an excessively large filling in it. Why then as artists should we disfigure our work of art?

As for the shape of the cavity, while a simple ellipse or oval answers every purpose, yet taste may dictate any varieties so long as the above hints are regarded. Sometimes a patient will insist on having a round hole filled on the face of the tooth. It is easily enough put there, but for looks it is just as natural and beautiful as a moustache dyed black on a strawberry blonde. A very natural looking cavity can be made by drilling a long elliptical hole across the neck of the tooth to imitate the peculiar form of caries which occurs there. It is by no means ornamental but looks very real.

The process of drilling cavities is well known, but a few hints may be useful. Have a small assortment of diamond drills which may be obtained of a lapidary or at the depots. Two or three large ones to cut out the cavity and one or two small ones to make undercuts are sufficient. Have some small corundum points and wheels such as are used on the engine. The work can be done by a dental engine, in which case the tooth should be secured by cement or in any other way so that it will not slip and be broken; or if the operator has a good true lathe head and a large driving wheel so as to get rapid revolution, the work can be better done by using the drills and points on this lathe, holding them by means of a split chuck and bringing the tooth against them. By this means more control is had over the work and greater force can be exerted on the diamond drills. Whichever method is used, begin with a corundum wheel of the right size for the cavity and grind out a depression just the shape desired. Take one of the larger drills and drill into this depression in one or two places, running the lathe or engine very rapidly, and then extend by working laterally with the drill until the whole depression is thoroughly excavated to the proper depth. Be careful not to get beyond the boundaries of the cavity as ground out by the wheel, or the edge may chip off.

Next bevel the edges slightly with a conical corundum point exactly as the walls of enamel in the natural tooth would be trimmed. This gives a fine smooth edge to pack gold against.

Finally, with a small drill make the retaining pits deep enough to give a good hold for the gold. This work must be done with a very steady hand, as a slip will break the tooth. If the cavity was not very deep in the first place, the pits should be joined by working the drill across the bottom from one pit to another; very slowly and with little pressure, or the drill will soon be worn out.

Grooving may be done to save loss of tooth material from deep retaining pits, or in some cases it may be necessary. It does not pay to do it by working with the point of the drill, but it can be neatly done by means of very small wheel points made of soft steel or iron, and used with diamond dust. These wheels can be turned on a lathe from stems of old points and should be small enough in diameter to go to the bottom of the cavity, resembling, in fact, an ordinary small burr wheel and used similarly for grooving. Apply the diamond dust with glycerine, and use a minute quantity of the dust, which can be bought in a small quantity at slight expense, and will last for years at this work. Grooving under the edges of the cavity will avoid the necessity of making deep pits and also of connecting them with a small drill.

But for ordinary purposes grooves are not necessary, unless much of this work is done, so that it will pay to groove and save wear and tear on drills.

This then about sums up a penetrating subject in which there is room for the exercise of ingenuity in improving methods and results.—*Dental Office and Laboratory.*

CROWN WORK AT THE BERLIN CONGRESS.

In the way of crown work, there was a demonstration of putting on a Richmond crown, by Dr. R. W. Starr, of Philadelphia, who confines himself entirely to crown and bridge work, and whose name is well known on both sides of the Atlantic in that connection. As there are various points of interest in the methods employed, I hope you will pardon me for giving a somewhat minute detail of the operation. The tooth was a right central incisor with a distal cavity, having an exposed pulp, and the distal corner broken off. The operator stated that he never used arsenic except in cases of back teeth, and also that teeth may be cut off with hardly any pain without its use. The tooth was nicked on both sides, labial and palatal, with thin discs, and cut off with an excising forceps in the usual way. Then taking a hickory peg, one end whittled down to somewhat less than the size of the pulp canal, the point was dipped in carbolic acid and driven home with a smart tap, producing evidently little pain, the projecting end being then twisted off. (Since coming home, I have tried this method once or twice, and the results incline me to believe that where in a single-rooted tooth you have free access and a pulp canal free from secondary deposit, especially at the entrance, this is a much better method, because less painful, than the ordinary one of removal by a nerve broach. Dr. Harlan, of Chicago,

a short time ago, gave his experience of half-a-dozen cases where he tried it, with the result that the majority of the patients left him, and some threatened him with an action for damages. These, however, were probably cases for filling, and the conditions much less favorable than when the pulp and pulp cavity are completely exposed, as in excision of the crown.) The root was trimmed entirely with the corundum discs, beveling especially the palatal portion, which was not ground down to the gum level. The diameter of the root was then taken with wire in the usual way, but instead of cutting it at the lap, which is the direction in the books, it was cut opposite to it and the divided ends straightened out, the twisted portion thus forming a convenient handle. One of the ends of the wire being shortened by about one-sixteenth of an inch, a piece of coin gold, number twenty-nine of the American gauge, and about one-eighth inch wide, was cut off, the ends placed edge to edge, and soldered in the Bunsen flame, forming the collar. This was then placed on the root, and, after a little adjustment, was forced up to fit tightly. It was then taken off, the gum edges beveled, the sides being also filed concave, while the other edge was bent outwards slightly. Having been again placed in position, it was ground down to the level of the stump. A piece of plate of the same thickness as the collar was then placed on the top, held by a clamp and soldered. The superfluous plate having been trimmed off, the cap was finished and ready for adjustment. The root canal, with the remains of the wooden peg, was then drilled out deep enough for the pin, the end, however, of the peg being allowed to remain as a permanent apical plug, the operator stating that the pulp was literally displaced or knocked out by the peg,—quite a new light to me, who always thought that the invariable practice was to remove the whole of the peg along with the pulp, as soon as it had been driven up. The cap having been put on, a sharp point was forced through it, opposite the root canal. A piece of gold wire, in default of a platinum-iridium one, was then passed through the hole in the cap, so that it was held tightly in place, and did not require the aid of wax to retain in position. Taking the cap off, the pin was soldered, and the tooth was then fitted to the cap, the neck overlapping the gold in front, the whole of the adjustment being done in the mouth, so that there was no impression taken, from beginning to end. The tooth, cap and pin were then put in a mixture of asbestos and plaster and soldered. To attach the crown, Dr. Starr used Baldwin's oxyphosphate cement, which he stated did not pack in pressing up into position, the excess oozing out readily and not requiring a vent hole. As to the time required for such an operation, he stated that a few minutes over an hour was sufficient for most ordinary cases.

Dr. Melotte, of Ithaca, another well-known authority, made a small bridge of one tooth, a lateral incisor, where the root had been extracted.

As this demonstration was carried on simultaneously with the one just mentioned, I was not able to follow the details so closely. A very nicely fitting gold band was made to fit the canine, which was sound, about one-eighth of an inch being the width shown in front. To the side of this, the backed tooth was soldered with a small spur on the other side, resting against the back of the central, also a sound tooth. There was another demonstration of adjusting ready-made gold crowns, of which, however, I merely caught a glimpse.

The operation of implantation, as usual, attracted great attention, especially as its introducer, Dr. Younger, was the operator. The operation has, unfortunately, a sort of sensational side to it, and there seems to be a tendency on the part of its exponents to pander to that. I do not suppose that it was Dr. Younger's choice, but at any rate he was induced to use a bicuspid tooth of a mummy, the crown of which had crumbled off and was replaced by a crown of a natural tooth attached by cement. The root itself, I need scarcely say, was of that deep brown color one finds in teeth whose age is measured by centuries. There was no possible reason for its use, except as I have just stated, and it seemed to be quite a degradation of an operation which is presumably a scientific one. In this case, no exception could be taken to the very neat manipulations of Dr. Younger himself, and which might be regarded as the redeeming feature.

Of mechanical dentistry proper there was little to be seen, Dr. Cunningham, of Cambridge, having it nearly all to himself, in his demonstration of a low heat porcelain gum, which has been since shown at Exeter. His knowledge of all the official languages enabled him to make the most of his auditors understand the process.

Though not a clinical demonstration, I may perhaps add, in closing, that the exhibition of micro-photographs by Mr. Mummery seemed to be the most appreciated feature in the dental section.—*Extract from British Journal of Dental Science.*

RUBBER DAM.

BY DR. LOUIS OTTOFY, CHICAGO, ILL.

Rubber dam 6 inches wide and 15 feet long, of medium thickness, costing at retail \$1.50 per yard, contains 1,080 square inches of rubber; when cut triangular (as many do cut it), it will yield 60 pieces, each 6x6x8 inches, and costing 2½ cents for each piece. Cut square, the same amount will yield 36 pieces, each piece costing a fraction over 4

cents. The average piece of rubber dam used will not cost over 5 cents for each piece. When put up in boxes with blotters, as above referred to, there are 48 pieces in a box of the medium thick, each piece costing a fraction less than four cents.

The object of considering this matter of cost in connection with this subject is obvious. When rubber cloth was first introduced, it was customary to save the cloth, wash it and use it again on any patient in the same way as a napkin. Although the full value was not understood, the rubber cloth was then considered one of the novelties, and not the absolute necessity of to-day; its cost when used was not calculated in dollars and cents. Since that time many have clung to the habit of washing and saving the dam; a practice in which there is much to condemn and nothing to recommend. Formerly I also followed the custom from a motive of economy. The old rubber cloth was thicker and contained less rubber, held together by means of linen fibre in the form of a cloth; hence it bore washing and exposure without in any special way affecting its quality for some time. The rubber dam of to-day is an entirely different material; it loses its elasticity after frequent immersions in water, and also becomes brittle, often tearing during its application or sometimes during the operation of filling, and whenever present on the tooth is constantly a menace to the work in hand.

I trust no one is in the habit of using the same piece of rubber dam on different patients, and hence I only refer, *en passant*, to the possibility of inoculation and the transmission of disease from one patient to another. This is notoriously probable when the rubber dam has been used in a mouth affected with pyorrhœa alveolaris; indeed, it is possible to transfer the disease from one part of the mouth to another in the same person; hence it should not be used a second time in the same mouth. Of course, I understand that the rubber dam is always washed before a second using, yet we know that disease germs are subtle and some of them even microscopically undistinguishable. Furthermore, it ought not to be used a second time in the same mouth, because of the unpleasant sight of using a thing like that which does not look fresh. The dam is at best unsightly, and taking it from a book of blotters or from an envelope with the patient's name on the same, or from a row hanging on the wall with the patient's name stamped on each piece of rubber, or picking it out of the waste basket,—memory and the position of the holes in the rubber acting as the guide for the identification of the rubber,—neither of these methods is pleasant, and should therefore not be resorted to. The cost of the rubber, as shown above, is almost nominal, and the expense should be considered as much a legitimate one as the gold introduced, and also as an essential accompaniment of the filling, the cost each time being from 2½ to 5 cents. Considering an extreme case in which all possible

operations may be performed in one, I doubt that the expense of rubber dam could be more than \$2.00, which would represent only a comparatively small portion of the entire expense. Finally, a few words regarding the practical application of the rubber dam and its accessories in the office.

When the rubber dam, as it comes from the manufacturer, has an intense and disagreeable odor, as is sometimes the case, or is covered with soapstone, employed for the purpose of preventing it from adhering together, it should be washed in water to which a few drops of cologne have been added. Generally, I don't think this necessary. Whenever possible, cut the rubber dam from the bulk in the presence of the patient. Put up in tin cans, this can conveniently be done on the bracket table. As to the size to be used, one should be governed by his own taste; many like extremely large pieces, while others, who generally place a napkin under the dam to prevent its often unpleasant contact with the lips and cheeks, can well get along with a much smaller piece. When cut square, 4x6 is the usual size; when cut triangular, 6x6x8 is generally the size required. If we look through the literature of this subject, we will be led to believe that cutting the holes is an extremely difficult operation, and the manner in which it can be performed is described in many grave and potent articles. Use a red-hot excavator, stretch the dam over the butt of an instrument and then clip it with a knife, fold the rubber and cut the holes with a pair of shears; use a hand-punch or a punch in the shape of a pair of pliers—the most convenient of them all—making the openings about one-eighth of an inch apart, in some cases somewhat less, and arrange them in the circle in which the teeth to be operated on stand. Generally three, sometimes four or five, nearly always two teeth, should be passed through the dam, even if only one tooth is operated on.

Now the application of the dam to the teeth is simple and is difficult. Simple when all conditions are favorable: large mouth, flexible lips, bell-shaped teeth, not crowded and normally movable; and difficult when the opposite conditions exist, or when it is to be applied on some of the back teeth.

If the teeth over which it is to be applied are not clean, polishing them with a wheel and pumice will enable the rubber to hug the teeth and not slip off readily. To hold it in place on the tooth, use either nothing, a wedge, ligature or clamp, as the case may require. In many instances the shape of the tooth will retain the rubber, especially if the hole cut happens to be the proper size, 1-10 in diameter of the diameter of the tooth. Sometimes a wedge will serve to hold the dam above the cervical margin, and sustain the tooth, and if of a light-colored wood, makes the margins in these positions more readily visible. Ligatures of

floss silk, waxed, are perhaps most often used, when used on back teeth to prevent confusion between them, and a different color can be used for each tooth. With the aid of an assistant there is seldom a case where a ligature cannot be applied and retained, and it is principally in these cases where I find any need for a clamp. For this purpose a plain clamp which hugs the neck of the tooth is all that is necessary. I cannot now go into the consideration of clamps as such, or of their numerous virtues as exemplified in pushing the margin of the gum or in holding the dam, tongue or cheek out of the way, etc.

When the dam is thus retained within the mouth on the tooth, it can be externally fastened about the head by means of holders or buckles, of which there are a number on the market, and drawn down over the lower lips by means of weights. To prevent revolving wheels from catching the dam, soap it. In case by accident the dam is pierced in the proximity of a tooth, as a general rule time is saved by applying a new piece; sometimes this can be done by applying it directly over the first piece, sometimes a plug of cotton and sandarac, or solution of gutta-percha in chloroform can be employed to seal the perforation. Whatever you fail to do, never fail to throw away the dam after using, and do it in the presence of the patient.

Dr. W. B. Ames, of Chicago, has suggested an ingenious use for rubber dam. There is a very thin rubber dam placed on the market having the shape of a large test tube; this is filled with soft plaster-of-Paris, and an impression of a cleft palate can be obtained without the unpleasant annoyance accompanying the flow of soft plaster into the nasal fossa or pharynx. The samples which I am about to pass around may be retained by those who wish to use them.—*Dental Review*.

THE TARIFF ON MANUFACTURED TEETH.

When the so-called McKinley bill was passed by both houses of Congress and signed by the President, it is questionable whether the dental profession at large had any idea that it touched their interests, only as it indirectly affected the great mass of the people. It was therefore doubtless with surprise that they discovered that they were to be subjected to the unpleasant effect of a prohibitory clause, which must appear to any reflecting mind as being wholly unnecessary and one in direct opposition to the best interests of operators and patients.

On examination of the official "Comparison of the Custom Laws of 1883 with the New Law of 1890," it is found, under the heading "Schedule N, Sundries," that "Items specially provided for under the

old law, which will be classified under the new law according to the component material of chief value," there is given, among other articles, "Teeth manufactured, twenty per cent. *ad valorem*" (old law). As porcelain is the "component part" of teeth, an examination of "Schedule B" gives us the new law. "China, porcelain, parian, etc., . . . not specially provided for in this act, . . . if not ornamented or decorated, *fifty-five per centum ad valorem*."

It is not the purpose of this journal to question the policy of protection in any sense, as that would be beyond its province; but when a blow is aimed directly, as this does, at an important part of our profession,—mechanical dentistry,—it is certainly not only our duty, but that of every individual connected with our calling, to protest, and ask for its repeal. The twenty per cent. *ad valorem* was ample protection to the manufacturing interests engaged in this specialty, if protection were needed at all.

The production of artificial teeth has been, from the earliest periods of the manufacture, almost exclusively confined to the United States. The product has occupied, very justly, a pre-eminent place in the work of the world, and has never stood in danger of competition. In no country of Europe has there ever been an approach to the results obtained here, and only in one case has any manufacturing establishment on the other side of the ocean been able to compete in Europe with those specially engaged in this work in the United States. This exhibit is a remarkable one in view of the extraordinary development of porcelain manufacture in other lines in Europe.

The few engaged in this manufacture in this country have grown wealthy, as they practically enjoyed for many years the monopoly of the markets of the world, and, as far as this country is concerned, the importation of foreign manufactured teeth has been in the past of insignificant proportions.

A demand has, however, grown up in recent years for the product of an English manufacturer, for the reason that these teeth possessed some advantages for certain kinds of dentures, especially that of "bridge-work." This demand evidently began to assume disagreeable proportions, or no one would have heard of an increase of duty.

The situation is now such that it will be impossible to procure these teeth without great difficulty and serious additional expense. The latter is not of so much moment as the fact that they will probably not be obtainable here at any price.

Now, it may be asked, why this increase of duty? Is the industry one that requires protection? Have the gentlemen who have been engaged in this manufacture for the past half century not realized an equivalent for the capital invested? Have they at any time been in

competition with the cheap labor of Europe? These questions, and more, require answers from those financially interested. We have no information to lead to the supposition that undue influence has been used to secure this additional charge; but it is singular that the Committee of Congress should have decided to increase the duty thirty-five per cent. without solicitation or knowledge. It would be interesting to know the reasons for this great increase.

As a profession we have nothing to do with the political aspects of this question; but it does seem as though active efforts should be made to secure the repeal of this obnoxious clause, for which not a shadow of reason exists.—*The International Dental Journal*.

SHALL WE HAVE A NATIONAL DENTAL MUSEUM?

That a dental museum would be an advantage, and indeed will soon be a necessity, is an undisputed fact. The problem is, how shall it be established? Here we revert to the old saw, did the hen precede the egg, or was it *vice versa*? Shall the museum be established first, or shall we primarily obtain a collection? We favor the latter plan. Any attempt to found a dental museum, leasing a building and appointing a curator, and then waiting for material with which to fill the cases, would seem so unpromising that it would receive but lukewarm support. If, however, a large and valuable collection, classified and arranged, were already awaiting a home where it might be used by all, it would be much less difficult to inaugurate the movement. This then is our proposition. We will, *pro tem.*, be the custodians of all dental curiosities, casts, skulls, anomalies, models, implements, materials, etc., etc., which the profession may send to us. We will care for them, classify them, and hold them in trust for the profession at large until such time as our national museum shall be founded. We will publish a description of each donation to the collection, giving credit to the donor, and thus we should hope by keeping the subject before our readers to stir up an interest in this important movement which should eventuate in some fruition.

There is already a nucleus for a national library awaiting claim by the profession. For many years, Dr. Theo. G. Lewis, editor of the DENTAL ADVERTISER, has been collecting books, periodicals, and dental literature with the avowed intention of transferring them to a public dental institution, whenever such shall be founded, where all may have the benefit of its uses. Dr. J. B. Nichols, of Potsdam, has recently forwarded to Dr. Lewis a box containing his own collection during forty years. We suggest that all dentists who have either duplicate works, or works which

they no longer use, should at once forward them to Dr. Lewis. We shall do so, and we suggest to Dr. Lewis that he take up this matter as we have and work with us in our endeavor to start a museum. We should appreciate his approving our proposition and should be pleased to have him advise his readers to send their dental curiosities to the *Mirror*.

That a museum which should represent the progress of dentistry, recording the appearance of all appliances, and especially containing models representing all methods, would be of inestimable value, is readily demonstrated. It is claimed that one-half of the crown and bridge patents could be broken, if proof could be found that the methods were not original with the patentee. If a museum had been in existence fifty years ago, we would simply need to refer to a catalogue, and then to numbered shelf and specimen, to find the evidence needed to free us from the annoyances to which we are now made subject by the International Tooth Crown Company. Is not this single suggestion enough to point out the absolute necessity for such a repository of the evidences of progress?

Since we do not as a professional body approve of patents, many of us do not record our inventions in the registers of the patent office. If we had a museum, however, as soon as a man conceived an idea he would forward a working model to the curator, and no one after him could claim his idea. We suggest that inventors should henceforth follow this plan, and send to the *Mirror* models of new implements, or descriptions of new methods. We will guard the collection and keep the records, so that when the time comes to deposit them in the care of appointed authority, there will be already a foundation for a valuable dental collection.

At Moorehead City, N. C., at the next meeting of the Southern Association, a committee will report as to the feasibility of founding a permanent home with suitable buildings, where annual conventions may be held and libraries and collections stored. The idea is to have what may be termed a Dental Chautauqua. It will take two or three years to bring this to a successful issue, but there is evidence that it will be attained eventually. Let us have something to hand over to the curator as soon as he shall be elected. We hope to be able to report some donations by next month's issue.—*Dental Mirror*.

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TO REMOVE THE ODOR OF IODOFORM FROM THE HANDS.—For this purpose Bienert recommends (Pharm. Zeitschr. Russl.) washing the hands once or twice with flaxseed-meal in water. He states that the odor very quickly disappears.—*Deutsche Med. Zeitung*.

TREATMENT OF HÆMORRHAGE AFTER TOOTH EXTRACTION.

We come now to the all-important question of the immediate treatment of the cases under consideration. It is unnecessary for me to trouble you with any thoughts or suggestions as to ultimate or constitutional treatment. It will be most profitable to consider how best at the moment the dentist can stop the flow of blood and let his patient depart from his care quite secure. It will be inferred that in the cases already commented on, various remedies have been adopted, and I am sure that I must have seen twenty or more tried with more or less of success. My desire is to name the simplest and the best in the short time still at my disposal. In my early practice, on being summoned to a case, my instant attempt was to stem the flow of blood, without inquiring too minutely what was the cause of the accident. Bye-and-bye I found that there was rarely any great reason for hurry; that it would take a long time for a person to die from the loss of blood, and that faintness was not such an anxiety as some make of it, but rather assisted the action of remedies, because it relieved the tension of the circulation, and made it easier to manipulate on the point from which the hæmorrhage proceeded. Gradually I found certain reliable steps, which I now follow, and which I think should always be followed.

In the first place, it is essential to ascertain if the blood that is being lost is or is not coagulable. If the blood is coagulable—if a little of it caught in a cup or glass goes into a firm clot in the course of two or three minutes—much cause for alarm is removed, and the line of treatment is sufficiently clear. We may be sure in such a case that the cause is either vascular or mechanical, that there is failure in the contraction of the bleeding vessels, or adhesion of the vessel to the surrounding bone tissue, or rupture of an abnormally large vessel. Whichever it may be, there is the assurance at hand that the blood is in a favorable condition for forming a plug, and that if it can be retained in the cavity a sufficient time to enable it to form a firm clot it will produce a natural arrest. I shall deal with this simple treatment first.

TREATMENT OF VASCULAR AND MECHANICAL HÆMORRHAGE.

This treatment includes three methods: (1) The styptic; (2) The plug with pressure, with or without styptic; (3) The cautery. In the beginning of my practice I trusted mainly to styptics in this class of case, and after many trials I came to the conclusion that nitric acid was the best. I believe still, that as a styptic it is the best, but it has the disadvantage of being very difficult to manipulate with, owing to its extreme

caustic and destructive properties. I afterwards invented styptic colloid, which is composed of tannin in collodion, with addition of tincture of benzoin; and for ordinary cases I do not know of a better. The colloid can be applied on cotton wool, and a firm plug of it can be inserted with much facility. When this did not seem sufficient, I resorted to perchloride of iron, applied in solution with cotton wool. It has often happened that these simple methods have proved effective. When they have not, I have proceeded to the second plan, that of the plug with pressure.

Three kinds of plugs have been used. One is made of soft, well-teased cotton wool saturated with styptic colloid. The mass is not put in in too moist a form, but, mixed in a cup, is allowed to dry slightly by the evaporation of the ether. Then, after well drying the bleeding cavity with a pledget of lint, the colloid cotton is inserted with forceps, the point of which has been dipped in olive oil, layer by layer, as in a process of roughly stopping a tooth, until the cavity is completely filled. A little bit of dry wool is next made to cap the whole, and pressure is made with the finger or with Harding's compress until the plug is solid, which, owing to the escape of ether, is rather a quick process.

A second plan is to use a perchloride of iron plug, made by saturating cotton wool with solution of perchloride of iron, and then drying the cotton down. Cotton so prepared can be kept in bottles ready for use, and can be applied as a plug in a similar manner as the colloid. I have also constructed what may be called the *wick styptic*, and this is very useful in minor cases. It consists of a glass tube having a narrow point, through which is drawn a piece of cotton wick saturated with perchloride. A portion of the wick projecting from the narrow end of the tube can easily be inserted and firmly held in the cavity; when it becomes saturated with blood it can be cut off, a new bit pulled out and a fresh application made.

The best plug of all I have been able to construct is a gutta-percha styptic plug. It is very convenient, and is easily kept at hand for an emergency as a disc. The discs here named consist of gutta-percha saturated with a styptic, tannin or perchloride of iron. One of these discs, picked up by the forceps and held for a short time in hot water, softens and becomes so malleable that it can be inserted into any cavity. The bleeding tooth cavity is quickly dried with absorbent cotton wool, and is then filled with the plastic styptic, pressed firmly down to the bottom and held there until it becomes firm. There is no fear of putting in the plastic styptic too hot, since heat favors coagulation. I have placed a few of these styptic discs before the Society, this being the first time on which I have brought them into notice.

TREATMENT OF PURPURIC HÆMORRHAGE.

The lines of treatment above-named are required for cases of mechanical hæmorrhage, in which the blood is naturally coagulable. I therefore pass at once to consider the management of those more serious accidents in which the blood is deficient in plastic quality. I need not dwell long on this matter, because my mind is made up in regard to treatment. Presuming that the blood flowing from the injured part shows no tendency to clot and is discharged in a steady stream, which is not arrested by pressure or the ordinary application of styptic, it is necessary at once to produce secondary or albuminoid coagulation. It must be remembered that no blood is so constituted that it cannot be made to coagulate. In the most fluid blood there is albumen, which will not become solid spontaneously, but can be solidified by various means we have at hand, namely, tannin, perchloride of iron, and the subdued actual cautery. It may be well always to try the two first-named styptics, and in the perchloride percha styptic and the percha tannin styptic, to some extent, we have substances which will coagulate albumen, even when they are not heated, and will instantly coagulate albumen, if heated to 140° Fahr. These, therefore, are very ready in emergency. If they fail, no time should be lost in resorting at once to the cautery. When the electric cautery is at hand, it is the most convenient; it does not alarm the patient, and the heat of the terminal probe is sustained in the cavity; but if the electric cautery be not at hand, the next best is the small iron cautery, an iron bulb terminating in a rounded point and fixed in a strong handle at an oblique angle. This bulb and point can be made red hot in the flame of a spirit lamp or of a gas jet. But it is not necessary to alarm the patient by using it while it is in a state of glow. It may be allowed to cool down until all redness has disappeared, and can then be inserted deep down into the bleeding cavity. Skillfully used, it gives no pain of moment and its effect is, as a rule, immediate in the arrest of blood. Should it fail, there is no other direct local measure that can be depended upon. Even ligature of the carotid, if the case should come into the hands of a surgeon, would be a doubtful measure, since hæmorrhage from the surgical wound might be uncontrollable and simply add to the danger. Happily, for my part, the danger has only once pressed to the extent of suggesting so extreme a measure, and then the hæmorrhage was stopped by the cautery and did not return. In other cases, four in number, the cautery has acted at once. It is a remedy applied with unusual readiness if the idea of fear of it be not exaggerated. It should never be used at such a heat as to destroy structure. The coagulating power of heat over albumen, viz., 140° F., is all that is required strictly, but this may be safely exceeded to 150 or 160 degrees.

Before I conclude, there are two other topics to which I must call attention. It is customary, when the accident of hæmorrhage occurs, for the operator, or for some bystander, to administer wine, brandy or some other alcoholic stimulant to the patient, under the false idea of sustaining the vital power. It is my solemn duty to protest against this practice on the strictest and purest scientific grounds. The action of alcohol, under such circumstances, is injurious all round. It excites the patient and renders him or her nervous or restless. It relaxes the arteries and favors the escape of blood through their divided coats. Entering the circulation in a diluted state, it acts after the manner of a salt in destroying the coagulating quality of the blood; and above all other mischiefs, it increases the action of the heart, stimulating it to throw out more blood through the divided vessels. These are all serious mischiefs, but the last named is the 'worst. In hæmorrhage the very keystone of success lies so much in quietness of the circulation that actual failure of the heart, up to faintness, is an advantage; it brings the blood at the bleeding point to a standstill, enables it to clot firmly, when it has that tendency, and so to form the most effective possible check upon the flow from the vessels. In the case I spoke of in which I removed the hard palate, the quantity of blood lost during the hæmorrhage amounted to over three pounds weight, and the syncope was so extreme that the patient did not know that anything had been done to him after he returned to consciousness. But not a drop of any stimulant was administered him at any stage, and the care to avoid any such administration was carefully sustained after recovery, in order that the rapid action of the heart might not overcome the resistance of the tenderly sealed up vessels. Indeed, I am certain that this rule of avoiding stimulation was far more effective in saving my patient's life than any surgical skill of mine, for the vessel I twisted might have become plugged up naturally during the syncope, but nothing would have prevented the bleeding from breaking out afresh if the heart, instead of being allowed to swing round of itself slowly and safely, had been whipped, for a brief period, into violent action. I refer to this case as typical, because if a stimulant was not wanted in it a stimulant cannot be called for in examples less severe. The course followed in that case was to lay the patient quite recumbent when signs of faintness supervened, and so long as he could swallow to feed him with warm milk and water freely. This, in my opinion, is the proper treatment to be employed in every instance of syncope from loss of blood.

The second concluding topic has relation to the effect of blood swallowed by patients who are bleeding from the mouth. In all bad cases of hæmorrhage from the mouth some blood is almost of necessity swallowed. The act sometimes gives cause for undue alarm, and it invariably

alarms the patient. At first I was a prey to some alarm on this score, but experience has shown that the anxiety is groundless. The fact of a person swallowing a good many ounces of blood is not necessarily injurious. The blood is digested and is re-assimilated if it be not carried into the stomach in too large a quantity. When it is carried in in too large a quantity it is usually vomited, with a return of faintness, from which, however, I have never observed any serious danger nor recurrence of bleeding if that has been thoroughly staunched.

There are some other points of after-treatment of hæmorrhage, particularly in examples of the purpuric type. But as such treatment is mainly constitutional in character, and calls for internal remedies, it belongs to the physician and need not be insisted on in an essay which relates exclusively to the art of tiding over danger in the operating room and from one particular class of operation.

SUMMARY.

In summary, the leading points I put forward are that hæmorrhage from tooth extraction is due to one of three sets of causes: (1) To purpuric or fluid blood of which there are two varieties, (*a*) the aqueous, (*b*) the saline. (2) The vascular weakness or paresis of artery, occurring in constitutions, (*a*) strumous or scrofulous, (*b*) anæmic, (*c*) alcoholic, (*d*) syphilitic. (3) To mechanical lesion, the result of extensive mechanical injury.

In the treatment of hæmorrhage of the second and third classes, styptic treatment with pressure is that most immediately useful, the best styptics being tannin, and perchloride of iron, either of which may be applied by means of the styptic gutta-percha disc. In the treatment of vascular hæmorrhage, secondary or albuminoid coagulation must be induced, for which the subdued actual cautery is necessary. In all cases alcoholic stimulation is inadvisable; and the fact of blood being swallowed need not afford cause for anxiety.—*Benjamin Ward Richardson, in British Journal of Dental Science.*

RISKS OF COCAINE INJECTIONS.—The *Medical Press*, November 5, 1890, says that two warning cases are reported from France. In one of them, which occurred at Lille, the patient died, and the dentist who gave the injection was acquitted of neglect, but condemned for practicing medicine without qualification, the judgment indorsing the view that cocaine is an anæsthetic which requires to be used with prudence, and cannot legally be administered by other than a qualified medical man. In the other case, which occurred at Paris, the patient was with great difficulty brought round by hypodermic injections of ether. The cocaine injection was also made in this case by a dentist.—*Medical and Surgical Reporter.*

COMPLIMENTARY BANQUET TO THE PATRIARCHS
IN DENTISTRY.

The banquet in honor of the patriarchs in the dental profession, which was held in New York City on the evening of January 31, was a great success, and reflected credit on all of the committee, and especially upon Dr. Norman W. Kingsley, who conceived the idea in the first place, and ably carried out his share of the work, which included presiding at the dinner. The affair was under the auspices of the five societies in and around New York City: The Central Dental Society of Northern New Jersey, the Odontological of New York, the Brooklyn Society, the First District and the Second District Societies. The committee in charge were Drs. Levy, Meeker, Adams, Mirick, Perry, Brockway, Hill, Pitts, Jarvie, Campbell, Walker and Remington, besides Dr. Kingsley, chairman; Dr. Northrop, treasurer, and Dr. Ottolengui, secretary. The guests of the evening who were present were: Drs. John B. Rich, Washington, D. C.; Jesse C. Green, Spencer Roberts, and C. A. Kingsbury, Philadelphia; I. J. Wetherbee, Boston; T. H. Burras and W. B. Hurd, Long Island; A. D. Newell and I. Hayhurst, New Jersey; Jere A. Robinson, Michigan; A. I. Volck, Baltimore; John Allen, W. H. Atkinson, W. H. Dwinelle, S. A. Main, and L. S. Straw, New York.

The following accepted, and were prevented from attending: Elisha G. Tucker and Ambrose Lawrence, Boston; Finley Hunt, Washington; W. W. H. Thackston, Virginia; C. W. Spalding, St. Louis; and Augustus W. Brown, New York.

Those who were invited, but declined, were: Drs. Edward Maynard, Washington; Edwin I. Dunning, Newton Center, Mass.; J. De Haven White, Daniel Neall, and Edward Townsend, Philadelphia; R. C. Mackall, Maryland; J. Smith Dodge, Morristown, N. J.; A. W. Kingsley and I. F. Fowler, of New Jersey, but spending the winter in Florida; I. H. Farnsworth, Warren, Ohio; L. W. Bristol, Lockport, N. Y.; E. D. Fuller, Peekskill, N. Y.; B. W. Franklin, Ithaca, N. Y.; and W. A. Royce, Middletown, N. Y.

One hundred and eighty persons sat down to dinner, and owing to judicious arrangement by the committee all were seated in the proximity of acquaintances, which made the evening doubly enjoyable.

The feast ended about nine o'clock, and then followed the speeches. There were no toasts. After a brief explanation of the origin and purpose of the entertainment, Dr. Kingsley introduced Dr. Marvin to make an oration of welcome in the following courteous manner: "We have secured for this occasion, and for one night only, the services of the most

brilliant, eloquent, and silver-tongued orator of our profession, to make an address of welcome to our honored guests. He has had his silver tongue polished up expressly for this occasion. When I say that he is the most fluent and graceful speaker among us, it is not necessary for me to mention his name, for you all know that I mean Dr. Marvin."

Dr. Marvin was greeted with a storm of applause, which lasted so long that he must have felt greatly honored. He delivered a most eloquent eulogy upon the services rendered by the pioneers, and his beautifully phrased sentences brought forth numerous outbursts of merited applause.

Perhaps the most enjoyable feature of the evening was the humorous tilt between Dr. Kingsley and Dr. Hurd. Before introducing Dr. Hurd, Dr. Kingsley said :

"Gentlemen, we have heard of you for so long that your origin is involved in mystery. We know not from whence you come. We have heard that you assisted at the creation. We have heard also that in the Eocene Age, when the morning stars sang together, you were there and joined in the chorus. We have heard that you are the identical men who planted the big forest-trees of California, more than six thousand years ago. We have heard that at the time of the flood you tried to get into the ark, and couldn't, and that then you went off and built a little ark of your own and called yourselves an 'Independent Profession.' When the people in the ark saw what speed and progress you were making, they became envious and made overtures to you to become their tug-boat and tow the 'International Ark' along. But I will introduce Dr. Hurd, of Brooklyn, who will tell us the truth of this story."

The following is a synopsis of Dr. Hurd's rejoinder, which was received with boisterous laughter :

"One of the best evidences of old age is loss of memory, and when Dr. Kingsley tells you that we tried to get into the ark he shows loss of memory, for he was there himself. He has made just enough reference to the ark to be unsatisfactory, and in defence of these, my fellow approximate octogenarians, I think I ought to tell the story of the ark. It is not necessary to deny that we were there, and as sure as we were there, Dr. Kingsley was there! As we stood upon the bank looking upon that great sea monster, the ark, I heard a terrific puffing and blowing, and looking over my shoulder I saw the doctor with flushed face, distended nostrils, and rapid strides making for the ark. Just at that moment I heard the stentorian voice of old Noah sing out, 'Haul in that gang-plank!' You would have pitied our archæologist doctor if you could have seen his face as old Noah, looking over the side of the vessel, said, 'We can't take *everything!*'"

The doctor then became reminiscent and eulogistic, withal keeping near enough to the humorous to make his speech one which will live in

the minds of his hearers as one of the pleasantest incidents of professional conviviality.

After Dr. Hurd, a toast was drunk standing, in honor of Dr. T. H. Burras, who responded in language that showed that he is nearly as young in vigor as any who were present. Dr. Rich spoke eloquently, referring in glowing terms to the work done by those pioneers of dentistry, Drs. Hayden, Harris, Parmley and Baker.

A letter of regret was read from Dr. Elisha G. Tucker; and Dr. L. D. Shepard, of Boston, spoke for Dr. Tucker, and also referred in terms of praise of Drs. Joshua Tucker and Harwood. Interesting speeches were also made by Drs. Kingsbury, Wetherbee, Dwinelle, John Allen and Straw. Drs. Main and Atkinson were called for, but they had retired, the hour having grown late.

Altogether, the banquet of the patriarchs will live in dental history as a well-timed tribute to long and faithful service. A full report of the dinner will be printed in pamphlet form, and distributed among the guests as a souvenir of the occasion.—*The Dental Cosmos*.

CHICAGO WISDOM.

DR. T. W. BROPHY: One gentleman said he used very fine pluggers. If I were going to drive tacks I would use a tack hammer, and if I were going to drive spikes I would take a larger hammer, and so on. I have pluggers of the same form, running from very fine to very heavy, and if I am filling a large cavity I use a plugger which will correspond with the size of the cavity. If I have a small cavity to fill, I use a small instrument. It seems to me that this is the proper way to do—make the instrument correspond to the size of your cavity. I think a great deal of harm has been done in using too fine pointed pluggers; the gold is chopped up and allowed to crumble.

The remark has been made here to-night about the conservation of tooth substance, and the gentlemen have quoted surgeons. I do not think surgery has any particular bearing upon the method of a dentist in filling teeth. Nerve tissue, when divided, will unite, and most any other tissue, except arteries. Nearly all the tissues will be reformed, including bone; but who ever saw a cavity in a tooth cured by nature, except when filled with salivary calculus? The surgeon is aided by nature in the cure of disease, but the dentist is dependent upon his own skill for the preservation of the parts upon which he operates. Should he fail in making a perfect operation, does nature step in and assist him? By no means. If he succeeds in making a good, honest, skillful operation,

he may preserve the part upon which he operates, but if he does not succeed in doing everything to perfection, his operation will result in failure, because nature does nothing to assist him.

DR. EDMUND NOYES: In almost all instances I prefer to apply rubber upon teeth in the back part of the mouth—molars, by first tying a ligature with two beads around the tooth, and if the rubber is carried down under them, it can be relied upon to stay. In my own experience I have not found that a painful operation. It seems to me to average far less so than the application of a clamp, which is a source of very great annoyance after it is placed. If the application of such a ligature does prove painful it can be controlled by carrying around the margin of the gum a little cocaine and waiting, perhaps, two minutes. A ten per cent. solution, I think, is the proper strength to use for such a purpose.

I think most of you know my decided preference for the control of the rubber dam and the maintenance of the space between the teeth for proximal work by means of orange wood wedges, and I need not say much about that, except to repeat the special reasons for their use. It can, almost invariably, be forced above the margins of the cavities so as to expose the cervical border to full view and clear light. The light wood reflects light and makes the cervical border open to distinct vision, and it maintains the space during the operation which would otherwise be contracting continually.

In many cases, probably, the same thing could be accomplished with a separator, but, I think, not usually any better, and I find a separator in my way. Perhaps it would not be if I used it more. The painfulness of this operation is also mitigated by using a ten per cent. solution of cocaine upon the gum previous to driving the wedge. It will reduce the pain for the most part to that caused by the strain upon the periodontal membrane, which must be about the same as that produced by the separator or any other means of doing the same work. One of my reasons for using beads upon the ligature, instead of depending upon the ligature alone, is that I always desire to put some strain upon the margins of the rubber dam to get it out of my way, and to open the mouth and cavity to light, and I do not want to feel that the ordinary strain from my fingers or from the movements of the lips under the rubber will pull it off from the tooth. There are many instances in which nothing need to be used except to turn the margin of the rubber under the free margin of the gum, so that the tendency of the rubber will be to slide toward the apex of the root in the direction which its natural conical form tends to make it go, and all the pain and annoyance and time of applying ligatures may be avoided. That will oftener be the case upon the bicuspid. Sometimes the tendency to pull out from the space behind the tooth being operated upon can be controlled very readily and

admirably by a little clamp which Dr. Swasey has made for that purpose, or the same thing can be done by a bead on a string, drawn through until the bead occupies the space between the necks of the teeth.—*The Dental Review*.

THE AIR CHAMBER BANISHED.

BY A. N. FERRIS, D. D. S., WATERLOO, IOWA.

I do not expect to advance an idea entirely new to the dental profession, but will be pleased if I can add some encouraging words on a line that will help persuade a great many whom I believe are jolting along in an old rut, or in doubt at least, to wade entirely out, and up on to good smooth going.

Within the past year I have surprised my most sanguine expectations in the results I have accomplished by omitting the old foggy air chamber in artificial dentures.

I will not attempt an argument, that my friend Dr. C. H. Land's saliva adhesion theory is correct, or that any one's atmospheric pressure idea is incorrect, but I do believe too many dentists have been laboring, to their disadvantage, under an air chamber illusion.

Instead of the air chamber, better adaptation and hence better results can be secured by properly equalizing the bearings in other ways.

For metal plates, the Haskell plan of relief by use of a thin coating of wax on the plaster cast over the hard portion of the palate is good; but an experienced hand can scrape this part on the plaster impression with equally good results and with much less work and trouble, and for vulcanite or celluloid it is easier to scrape on the plaster impression and cast than to cut it out on the vulcanized plate.

I scrape on the plaster impression wherever the palate is hard, in some cases even to the anterior border of the hard palate as far as the alveolar process, but only enough, as I calculate, to relieve the extreme pressure on this part, but not with an idea of causing a vacuum in the plate. In mouths where it is much soft or elastic along the sides near the alveolus, I scrape on the plaster cast, to make that part of the plate hug closely, to avoid rocking over the hard part, also, for the same reasons, scrape on the cast where the posterior border of the plate is to come, if the part is soft.

From practical experience I am satisfied that plates, properly made without the crude air chamber, are less irritating to the mucous membrane, fit better, and are more comfortable to the patient.

I do not think of a condition in either full or partial dentures, but that could better be overcome than by the use of the air chamber.—*American Journal of Dental Surgery*.

CHARITY.

Charity may be made to cover a multitude of sins, but what, at first glance, may appear to have been a sin, may have been only an unavoidable accident. These thoughts were suggested by remarks made recently by one of the older members of the profession in speaking of the late Dr. Isaiah Forbes. He said that Dr. Forbes would never condemn the poor work of a professional brother, but would cover the defect with a mantle of charity, and went on to relate an incident confirming his statement. A parent went to see Dr. Forbes regarding a case in which a dentist accidentally extracted a permanent lower incisor, while in the act of extracting a deciduous tooth in the same locality, for a child. The doctor told the irate patient that such an accident might occur with any dentist. The narrator also had a like accident in after years, but saw what was about to happen, stopped and forced the tooth back in place, where it took hold, and seemed not to suffer much from its little shaking up. Another gentleman laughed and said that a few years ago a certain editor of a well-known dental journal had published an account of a similar accident, and another editor took him to task for telling such absurd tales. The gentleman further remarked that the latter editor showed his lack of knowledge of the literature of such accidents, as Tomes published the account of such a case and illustrated the teeth, showing their relation to each other, and demonstrating how the accident might easily occur. Such accidents, of course, are rare, and the extracted tooth should always be returned to the socket, where it is very apt to take root and suffer none from its temporary removal.— *The Archives of Dentistry.*

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TEETH OF NATIVE AFRICANS.

Mr. William Simms said that a few months ago he had inserted a denture for an African native, and at the time he had some conversation with him as to the methods employed by the natives of Africa in cleansing their teeth. Since his return to Africa, the gentleman had sent him (Mr. Simms) some of the tooth brushes used by the natives, and which were nothing more or less than the branches of certain trees, with which they vigorously rubbed the teeth. One of the pieces of wood had an astringent taste which might be of use to the gums.

Mr. G. G. Campion said that he had that afternoon seen a gentleman who two years ago had visited the Shire district of East Africa, and who was particularly struck with the beauty of the natives' teeth. His statements quite corroborated what Mr. Simms said, that the natives had

spent an immense deal of time and trouble in keeping their teeth clean and white.

Mr. Collett said he exhibited nearly two years ago some ornamental tooth sticks which came from Africa. They were made of a fibrous root, and, in order to render them like a tooth brush, the natives hammered them on a stone.

Mr. W. Headridge said the most perfect set of teeth he had ever seen were those of a patient he had had from the African district.

Mr. P. Headridge said he had had a patient from Japan, who assured him that little packages of what was called "soap-wood" were sold in the markets in that country, and used by the natives to brush their teeth.—*British Journal of Dental Science.*

ARISTOL, A NEW ANTISEPTIC.—Some time since, my attention was drawn to a new, powerful antiseptic, the thymol derivative called Aristol, discovered by Drs. Messinger and Vortmann, of Aachen.

It is the best substitute for iodoform, which, on account of its disgusting odor, is especially abhorred by patients who have disorders of the mouth or teeth. Aristol has no disagreeable odor and is easily endured by sensitive patients. It has no toxic properties like iodoform, does not irritate, adheres very readily to loose-lying pulps, and has excellent healing properties.

I tried it in all cases of most varied tooth complaints, in which the hitherto available antiseptics had been used, such as gangrenous pulps, antiseptic for the root canals, disinfection of carious cavities, before introducing the filling, and so on.

On gangrenous pulps, I strewed Aristol in powder with a fine brush; for disinfecting the root canals and carious cavities, I used a ten per cent. solution of Aristol in sulphuric ether; through the rapid evaporation of the ether, the Aristol forms an even coating and rapidly dries the cavity.

For fistulous spaces, I use small rods made of ten parts cocoa butter and one part Aristol, by which granulation and healing proceed rapidly. Aristol is insoluble in water, but readily soluble in sulphuric ether, collodium and fatty substances. It is generally used in a ten per cent. solution or directly in the powdered form, externally for wounds, all kinds of swellings, for eruptions, syphilis, ozæna, otorrhœa nasofaryngal syphilis, in gynæcology, and wherever antiseptics are indicated for external use.

Aristol may be regarded as an enrichment of materia medica, especially for disorders of the teeth, and it is very desirable that the remedy be further tried in this direction.—*Dr. J. V. Kejzlar, of Jiciu, in the Austro-Hungarian Dental Quarterly, October, 1890.*

IF I WERE inclined to dogmatize, I would lay it down as a rule to which no exception could be allowed, that whenever a bristle can be made to penetrate, carrying a few shreds of wool with absolute alcohol, through the length of a root, it is never necessary or expedient, whatever the condition of the root walls may be, to use a drill preparatory to root-filling. With free use of alcohol, aided by the hot-air syringe, softened dentine may be perfectly dried throughout. It is probable that this process of dehydration alone would suffice to leave the roots in a perfectly aseptic condition, but reliance is not placed upon this alone. Perchloride of mercury is used in solution with the alcohol, and the process is repeated at intervals over a period prolonged in accordance with the severity of the case. There can be no doubt the perchloride follows the alcohol wherever it penetrates the substance of softened dentine, entering dilated tubes and effectually sterilizing the carious tissue. The alcohol on evaporation leaves the perchloride as an impalpable powder, impregnating and covering the canal walls. Although I have not tried the experiment, I do not doubt that canals, left in such a state, unfilled, but having, of course, their apical foramina and their pulp-cavity orifices sealed, would remain permanently at rest; but I do not trust to this. The canals are always plugged as tightly as possible with absorbent cotton carried in wet with solution of perchloride in absolute alcohol, and dried by the hot-air syringe as the operation proceeds. A solution of 1 per cent. is not too strong for this purpose; one in one thousand is sufficient in preliminary treatment.—*Henry Sewill, in The Journal of the British Dental Association.*

THE PRODUCTION OF PLATINUM.—It is announced from Mexico that M. Flavio Lobato, Mining and Chemical Engineer, has discovered platinum in certain ores extracted from the mines of Las Yedras, in the State of Sinaloa. This news, if it is confirmed, will be of enormous importance to industry, more particularly as platinum is becoming scarcer and realizes an abnormal price. The platinum mines situated in the Ural Mountains contain, says the *Journal de la Chambre de Commerce de Constantinople*, important auriferous deposits. Until recently gold in large quantities constituted the chief mineral working, and platinum was obtained at the same time without large supplementary expenditure. The richness in gold of the chief mines, Nishnee-Taglisk and Gord-Blagodot, has much diminished, and the preparation of platinum has become more difficult. Such seems to be the explanation of the high price of platinum. A large number of miners have abandoned the mines, and have established themselves on the works of the Trans-Siberian Railway.—*Board of Trade Journal.*

LUMINOUS FLAMES WITHOUT SHADOWS.—The only luminous flames which do not throw shadows are those which consist of glowing vapors and gases. Luminous gas flame, oil lamp flame and candle flame, produce strongly marked shadows in sunlight, and therefore contain finely divided solid matter, and that this can be nothing but carbon is evident from the fact that all other substances capable of remaining solid at the temperature of these flames are absent. From these considerations it seems, Prof. V. B. Lewes says, that Sir Humphrey Davy's statement, "that the intensity of the light of flames—such as candle, oil or gas—depends principally upon the production and ignition of solid matter in combustion," is undoubtedly the true one, and we must also bear in mind that the degree of luminosity of a flame is affected by the constituents of the gas other than heavy hydro-carbons; some, like marsh gas, although ordinarily burning with an apparently non-luminous flame and separating no soot, yet add considerably to the luminosity at the temperature of the flame, whilst others, like carbon monoxide, reduce it. The luminosity of a flame is increased by increase of density in the media in which it is burning, and decreased by rarefaction, facts made strikingly clear by Frankland's experiments, although noted as early as 1658 by Boyle. The effect was supposed by Frankland to be due to the alteration of the mobility of the oxygen molecules in the air with the alteration in density; this view, however, is contested by Wartha, who concludes that it is due to the effect of pressure on the dissociation point of the hydrocarbons burning in the flame, this taking place more rapidly under an increased pressure, and the carbon being therefore more quickly liberated. Be this as it may, the effect of pressure on luminous flames is very marked even under ordinary atmospheric pressure, the difference, Prof. V. B. Lewes says, of an inch in the barometric column making 5 per cent. difference in the luminosity—*i. e.*, a burner giving 100 units of light with the barometer at 30 in. would only give 95 if it fell to 29, whilst a rise to 31 in. would mean an increase of the luminosity to 105 units.—*Exchange.*

DEATH IN A DENTIST'S CHAIR FROM COCAINE INJECTIONS.—The *Journal für Zahnheilkunde*, September 25, 1890, reports a case of death in a dentist's chair from injections of cocaine into the gum, given for the purpose of inducing anæsthesia for the extraction of roots of teeth. The patient was a woman, twenty-nine years old, apparently perfectly healthy but very nervous. The extraction was painless, and nothing abnormal was noted. The operator withdrew from the patient's chair to get some water for the patient to rinse her mouth with, and on his return

found her motionless. Physicians were summoned and artificial respiration was practiced, but without success. The autopsy disclosed the fact that three injections had been given, which served for the extraction of three roots. The quantity of cocaine in each injection was two centigrams, or one-third of a grain. The *Journal*, after commenting upon the dangers of cocaine, refers to nine cases of fatal poisoning reported by Dufournier, in the *Archives générales de Médecine*. One of these cases, however, is doubtful, as the patient took a mixture of chloral and cocaine. None of them happened to dentists, and the *Journal* thinks the case it reports the only fatal one occurring in the practice of a dentist. This may be true, but serious and well-nigh fatal cases undoubtedly have occurred. The *British Medical Journal*, February 9, 1889, p. 311, refers to one in which one grain and a third of cocaine was used.

To show how uncertain the action of cocaine may be, a case may be mentioned in which one-seventh of a grain injected into the eyelid produced very serious poisoning. The case is reported by the *British Medical Journal*, in the article already referred to. It would appear not to be safe to inject a larger quantity than one-half or three-fourths of a grain, especially into very vascular tissues, from which absorption is likely to be rapid and the consequent danger of a maximum effect upon the heart is greatest.—*Medical and Surgical Reporter*.



LORD ALTHORP, when Chancellor of the Exchequer, having to propose to the House of Commons a vote of four hundred pounds a year for the salary of the Archdeacon of Bengal, was puzzled by a question from Mr. Hume: "What is the duty of an archdeacon?" So he sent one of the subordinate occupants of the Treasury Bench to the other House to obtain an answer to the question from one of the bishops. The messenger met first with Archbishop Vernon Harcourt, who described an archdeacon as "aid-de-camp to the bishop;" and then with Bishop Copleston, of Llandaff, who said: "The archdeacon is *oculus episcopi*." Lord Althorp, however, declared that neither of these explanations would satisfy the House. "Go," said he, "and ask the Bishop of London. He is a straightforward man, and will give you a plain answer." To Dr. Bloomfield accordingly the messenger went and repeated the question: "What is an archdeacon?" "An archdeacon," replied the bishop in his quick way, "an archdeacon is an ecclesiastical officer who performs archidiaconal functions." And with this answer Lord Althorp and the House were perfectly satisfied. It ought to be added, however, that when the story was repeated to the bishop himself, he said that he had no recollection of having made any such answer, but if he had, it must have been

suggested to him by a saying of old John White, a dentist, whom he had known in early days, who used to recommend the use of lavender water to his patients, and when pressed for a reason for his recommendation, replied: "On account of its lavendric properties."—*The Dental Review*.

FOR SEVERAL years I was much troubled with the disintegration of the various phosphatic cements, which were used in the attachment of these appliances. About two years ago I was talking with my friend, Mr. T. A. Long, of Philadelphia, about cements, the uncertainty and general unreliability of them. After reflection, he suggested the use of Hill's Stopping as a material for setting gold crowns and bridge pieces, which would not disintegrate nor be affected by the fluids of the mouth; the only trouble was the great heat required. It was a happy thought. I acted on the suggestion, and have never had a failure where it was used. My method of using it is: first have the root *thoroughly dry*, and coat with a thin solution of Hill's Stopping, in chloroform; dry with hot air; inside the crown put a sufficient amount of the Stopping and warm to proper consistency, and then place in position *rapidly* with hand pressure. An opening should be made in the crown for the escape of excess material. When the crown is in position, chill thoroughly with ice water, after which fill the opening in the crown with gold wire, or foil.—*B. Oscar Doyle, D. D. S., in Dental Review*.

WE REGRET to have to record two more fatalities during the administration of chloroform. The first case occurred at Edinburgh. The patient was a boy of eight to nine years of age. Six teeth were to be extracted—two in the lower and four in the upper jaw. The boy was called in from play and placed on a table with a pillow under his head; his clothing was loose and his chest exposed. The patient having been got under chloroform, the two teeth in the lower jaw were removed. During the extraction of the upper ones, the patient struggled and threw himself about; a few minutes after the conclusion of the operation a pallor was observed, and nitrate of amyl and other remedies employed; the breathing continued for about five minutes. Help was then sent for, but before it arrived the patient was dead. The medical opinion was that death resulted from syncope, induced by shock. The boy's mother was subject to fainting fits. There was no post-mortem. The second case took place at Glasgow; the details have not yet reached us.—*The Journal of the British Dental Association*.

THE DENTAL ADVERTISER.

CONDUCTED BY THEO. G. LEWIS, D. D. S.

BUFFALO, N. Y., APRIL, 1891.

DESTROYED BY FIRE!

On Tuesday afternoon, March 10, 1891, at 1.30 o'clock, fire broke out in the handsome brick and iron business block at the corner of Court and Pearl streets, owned by Henry W. Burt, and opposite the building of the Buffalo Dental Manufacturing Company. Within an hour, surrounding property valued at about a quarter of a million dollars was destroyed. The fire was terrible in its destructiveness and fierce intensity. Gunpowder could scarcely have gone more quickly than vanished two fine buildings and their contents before the relentless greed of the flames.*

The Burt building was occupied on the first floor by C. V. Fornes & Co., wholesale dealers in woolens and trimmings. It was a branch of the New York house of that name. Schaubroth & Wohlers, shoe manufacturers and wholesale dealers, occupied the upper floors.

Ten minutes after the fire was first discovered, the building was a roaring furnace from cellar to roof. The first intimation the occupants had of their peril was when the engineer came rushing up the stairs, shouting "Fire! Save your lives."

This created a panic. Sixty women and girls employed in the building made a mad rush for the stairs. Some of the girls threw their cloaks and wraps from the windows, but most of them were glad to escape with their lives. Two of them were unable to reach the stairs before the heat had become so intense as to drive them back. When the firemen arrived they stood in an open window on the third floor as though about to jump. The Assistant-Chief and a former fireman went immediately to their rescue, and succeeded in landing them safely on the ground.

* We are indebted to Matthews, Northrup & Co., of this city, for the illustrations here used, which originally appeared in the *Buffalo Illustrated Express* of March 15, 1891.

The girls were scarcely out before the flames were bursting up in all parts of the building, and escape later would have been impossible. The men in the building were less excited, and with a few exceptions were able to save their effects.

The fire happened at a time of day when business-men were returning from lunch, and the thoroughfares were full of people. In less time than it takes to write it, a gigantic crowd had gathered, and the streets were black with people hastening to the fire.



GROUP OF FIRE-FIGHTERS.

Before the firemen could get a stream on the Burt building, the flames were spreading with lightning rapidity. No sooner had the fire attained the height of the roof, than, leaping out, it flashed clear across Pearl street in a sheet of vivid red flame, and caught the cornice of the Buffalo Dental

Manufacturing Company's brick building on the northeastern corner of Court and Pearl streets. For one moment there was a line of fire, an arch of flame, completely spanning the street. Once across the street the fire made quick work in penetrating to the very heart of the Dental Company's building. The firemen fought nobly, but the fierce red flames could be seen spreading on all sides, and there was no possible chance of saving the building. The water tower was put in position, and did immense work with its terrific streams steadily bearing on selected points in the Dental Manufacturing Company's block.

Nothing was more thrilling as a matter of courage and endurance than the sight of the group of three or four firemen who, when the fire was hottest, placed themselves between the seething furnace of fire in the Burt building and the rapidly burning Dental Company's building, and kept one of the most powerful streams of the day upon the flames in the latter block. Only once did the spectators, who praised their endurance, tremble for their safety, and that was when a portion of the Pearl street front of the Burt building was seen to be falling directly towards this little band of men. Then a general shout of warning went up from the crowd, and though it was given with all the vigor born of excitement, it was almost lost in the noise of the flames, falling floors, and the fire steamers. But it reached the men who stood with their backs to the Burt building, and they jumped for their lives.

The fall of this wall was the first of several exciting events that followed each other in startling rapidity. One minute later a terrific explosion occurred in the Dental Company's building, and shook everything in the region, starting the firemen, now swarming about the building, back towards the street. It proved to be a battery of six vulcanizers in the testing-room, gas having been left burning under them in the hurry of the workmen leaving the building.

At 2.18 P. M. the balance of the Court street wall of the Burt building fell with a tremendous crash, and the crowd beat a retreat as the debris was scattered for yards around.

At 3 o'clock the roof and floors of the Dental block fell in, and the building was a complete ruin. The fire, however, did not spread further. The firemen kept a constant stream on the flames from the front, top, and rear, and with systematic and efficient work they were

able to confine the fire to this building and finally place it under control.

All the employes of the Buffalo Dental Manufacturing Company escaped uninjured with the exception of four, who were badly burned by the intense heat from the opposite building, while descending by the front stairway.



BUFFALO DENTAL MFG. CO.'S BUILDING AFTER THE WALLS OF THE BURT BUILDING FELL.

The Buffalo Dental Manufacturing Company, composed of Dr. George B. Snow, Dr. Theodore G. Lewis, and Col. John E. Robie, has lost stock and machinery valued at about \$70,000. They had an extensive line of dental goods on hand, including every kind of implement and supplies used by dentists. In addition to this they carried a large stock of stoves and other appurtenances used in burning manufactured and natural gas, including a number of expensive patented articles, and a complete line of Fletcher's English Chemical Laboratory Apparatus.

As is well known to the dental world, the Buffalo Dental Manufacturing Company was splendidly located in a five-story building on

Court street, corner of Pearl. This building contained the Dental Depot and manufactory. In the basement were storage bins for castings, the boiler and engine room, packing room, and brass foundry. The first floor was occupied as stores. The Dental Depot and business offices were on the second floor, and contained a vast amount of dental material, chemical laboratory apparatus, gas stoves and gas heating apparatus. The third floor was used for the storage of manufactured goods, the bellows factory, and the painting rooms. On the fourth floor were located the machine shop, forge, superintendent's office, and the pattern room. The fifth floor was divided into a nickel-plating room, polishing room, grinding room, and tin shop. All the floors, from basement up, were connected with an elevator.

Thus was a complete and expensive plant, the fruit of nearly a quarter of a century's unceasing labor and devoted effort, remorselessly wiped out of existence in less than an hour's time!

ON MARCH 12, 1891, by unanimous vote of the directors, the BUFFALO DENTAL MANUFACTURING COMPANY was dissolved, and the entire management of the closing up of the affairs of the B. D. M. Co. placed in the hands of Col. John E. Robie. A new company has been organized to continue the manufacture and sale of Dental Material and Chemical Laboratory Apparatus, of the same class as formerly made by B. D. M. Co., under the name of the BUFFALO DENTAL SUPPLY AND MANUFACTURING COMPANY, the owners being Dr. Theo. G. Lewis and Col. John E. Robie, formerly of the B. D. M. Co., and Mr. William Gram, Jr., and Mr. Charles O. Rother, the former an employé of the B. D. M. Co. for nineteen years, and the latter for eighteen years.

The BUFFALO DENTAL SUPPLY AND MANUFACTURING COMPANY are now prepared to fill orders for Dentists' Materials of all kinds, from a stock of NEW GOODS, and will in a short time have their Manufacturing Department in condition to supply goods of their own manufacture.

THE PHILADELPHIA DENTAL COLLEGE had three hundred and fifteen matriculates, six of whom were women, and one hundred and forty-six graduates. session of 1890-91.

THE BERLIN CONGRESS.

At last definite news has been received regarding the Medical and Dental Congress, held at Berlin, in August last. We have questioned quite a number of the pilgrims, and have had our questions answered with characteristic smiles and knowing winks, that seemed to be reminders of something to be remembered, but not to be mentioned—outside of Germany. As near as can be ascertained, the following from a correspondent seems to cover the ground completely: “The Congress was a success, *I suppose*. I attended one session and nearly all the dental clinics, and with the rest of the boys dined, wine and beered—and such beer! I stayed a week, made a great many acquaintances, had a big spree and lived to return home and tell the tale. That is about all I remember of the Congress!”

IN REFERENCE to the statements respecting American Dental Colleges, reported in the January number of the *Dominion Dental Journal*, as having been made by Dr. J. B. Wilmott at the Dental Students' dinner in Toronto, in November last, the following correction appeared in the March number of that journal:

“*To the Editor of the Dominion Dental Journal:*

“DEAR SIR—On opening the current issue of the *Journal* this morning, I was astonished beyond measure, and, I fear, betrayed into some very uncomplimentary remarks respecting the editor, when I found myself reported as saying at the Dental Students' dinner, that ‘until recently all that had been necessary for a medical or dental student across the line to graduate was to be able to sign your name and produce a five-dollar bill.’ Of course, I never made any such statement. I am not quite a fool. The report seems to have been taken from one of the daily papers which put such a statement into my mouth, but corrected it next morning in its editorial news column. I was speaking at the moment of the application of the R. C. D. S. for membership in the National Association of Dental Faculties, and referring to the good work which the Association had done in raising the standard, extending the term to three years, and securing a matriculation examination; remarking incidentally, ‘that until recent years all that was necessary to MATRICULATE, was to sign your name and produce a five-dollar note.’ I matriculated in that way myself, and nothing more was at that time required. So far from belittling the American Colleges, I was really congratulating dentistry on a vast improvement in the past. While writing, I may be allowed to add, that while always ready to defend the R. C. D. S. against false statements or unfair criticism, I am far too sensible of the defects in our college—defects which I

see no near prospect of being remedied—to launch out in any such wholesale laudation as that with which I am credited. I am very sorry that such a manifestly false statement found a place in your columns, as it must do me much harm. I trust that any of your exchanges which may have referred to the matter may give me the benefit of this correction. I have no special ambition to be known as a libeller of the American Colleges, of one of which I am a graduate.

“I am yours, etc.,

“TORONTO, January 1st, 1891.”

“J. B. WILMOTT.”

“THE ZAHNÄRZTLICHE RUNDSCHAU,” published in Innsbruck, Tyrol, and edited by Dr. A. Papsch, has been discontinued for the present.

DR. S. A. LEWIS, of Warsaw, N. Y., extracted a tooth for George Emlinger, and George was anything but pleased with the way the forceps were handled, and imagined that Dr. Lewis had injured his masticatory apparatus to the extent of several silver dollars, and brought action in the courts to recover for the alleged injury. A jury trial was had and after an hour's deliberation a verdict of no cause of action was rendered.

SEVERAL of the dental journals, about the first of the year, contained an obituary of the *Archives of Dentistry*, accompanied with the usual amount of regrets and condolence commonly expressed on like occasions; but it appears all the tearless sympathy was wasted, as only a change in the editorial management occurred; and the demise of an excellent journal is postponed indefinitely. Dr. W. H. Eames, who has filled the editorial chair for three years, retires, and is succeeded by Dr. John G. Harper.

PROF. HENRY W. MORGAN, of Nashville, Tenn., has assumed the editorial management of *The Dental Headlight*, published by Morrison Brothers. The January number is much improved, and promises to be an interesting quarterly.

DR. JAMES A. LYDSTON, late Chief of the Eye and Ear Department, Pension Bureau, Washington, D. C., and Professor of Chemistry in the Chicago College of Physicians and Surgeons, has removed to Denver, Col., where he will re-enter the practice of his specialty. His change of location has been necessitated by the illness of Mrs. Lydston.

WE CONSIDER the article on "Pathological Dentition," by Dr. James W. White, of Philadelphia, printed in this number of the DENTAL ADVERTISER, one of the best ever written on the subject, and believe in the theories advanced. The belief is strengthened by an experience of no small number of years.

THE *Clinique*, published in St. Louis, Mo., has appeared in a new dress and under new management.

THE *Pacific Dental Journal* is the name of a quarterly that made its appearance in January. It is edited by Dr. W. E. Burkhart, and published by the proprietors of the Tacoma Dental Depot, Tacoma, Wash.

NO LOVER of a fine plant or garden can afford to be without a copy of "Vick's Floral Guide for 1891." It is an elegant book of over 100 pages, $8\frac{1}{4} \times 10\frac{1}{2}$ inches, with many beautiful colored illustrations. Instructions for planting, cultivating, etc., and full list of everything that can be desired in the way of vegetable and flower seeds, plants, bulbs, etc. It costs nothing, because the ten cents you send for it can be deducted from the first order forwarded. We advise our friends to secure a copy from James Vick, seedsman, Rochester, N. Y.

Mess edeter:—I have hird that you are in Posesion of the Dentesary Plaster Paris. if so. Please to let me no how you sell it by the Eight of a Kegg or in smaller quanites and Weather you Pay the Expresage or not. Pleas to let me no. W.

CORRESPONDENCE.

"A NEW METHOD OF MAKING DIES."

Editor DENTAL ADVERTISER:—I notice in the ADVERTISER for January, an article with the above caption. Forty-five years ago, in my "beginnings," the first dies I was taught to make were *tin*. As lead could not be poured upon this, the *counter* die was made first, somewhat as described by Dr. Chupein; but to me this was not satisfactory in its results, and there is really no necessity for it in the using of Babbitt-metal, for if one-sixth tin be added to the lead it can readily be poured upon the Babbitt; at least that has been my experience all these years.

L. P. HASKELL.

NORTH TROY, VT., March 5, 1891.

Editor DENTAL ADVERTISER:

DEAR SIR—I made an error in my article in the last number of the DENTAL ADVERTISER, and in justice to the manufacturer of the “Gladiator” and “Imperial Standard” dental rubbers I would like to rectify it. I mentioned the names of certain rubbers and really had reference to the above, and not to those as stated in that article. The “Gladiator” rubber takes the lead of all other rubbers I have ever seen or used, in purity, strength, color and finish. The “Imperial Standard” rubber, especially the shades of pink, are the superior of any class on the market.

You may think that I am over-enthusiastic in regard to these rubbers, but to those who have never tried them I would only say, try them and be convinced of their superiority. Many dentists and professors have written articles on dental rubbers, knowing but little regarding its manipulation, simply claiming that the coloring matter was pure mercury or “poison,” which is quite the contrary. Many dentists are too careless in taking impressions, making casts and in fitting the plate to the mouth, consequently when the plate is worn it naturally irritates the gums, and they become sore. Rubber is an absolute non-conductor, so that heat generating between the gums and the plate will certainly cause irritation, if the plate is not properly fitted. Again, dentists are in so great a hurry to complete a denture that half of them never succeed in working a pound of rubber of any make properly. I claim that all strong rubbers will shrink more or less if not allowed to cool off gradually. Dipping the flask in cold water in order to hasten the opening, is a practice that should be condemned. Most all dentists do it, and consequently manufacturers have loaded the rubbers with ingredients to tone the rubber down so it can be worked conveniently.

Now, Mr. Editor, don't think for a moment that I have any personal interest in the sale of these rubbers. The trouble and trials I have had with other rubbers is sufficient apology for my enthusiasm over those mentioned in the first part of this letter.

DR. G. H. FULLER.

CHICAGO, ILL., March 12, 1891.

Editor DENTAL ADVERTISER:—The Executive Committee have decided on Saratoga Springs as next place of meeting of the American Dental Association, commencing first Tuesday in August, 1891.

It is hoped by the Committee that each society will send delegates, that we may have a full representation from all parts of the United States. Program and arrangements to be announced later.

Yours truly,

J. N. CROUSE,

Chairman Executive Committee.

DENTISTS' SOCIETIES.

ALABAMA DENTAL ASSOCIATION—Anniston, April 9, 1891.

SOUTHERN MINNESOTA DENTAL SOCIETY—Mankato, April 21, 1891.

KANSAS STATE DENTAL ASSOCIATION—Wichita, April 28, 1891.

IOWA STATE DENTAL SOCIETY—Sioux City, May 5, 1891.

ILLINOIS STATE DENTAL SOCIETY—Bloomington, May 12, 1891.

NORTHERN OHIO DENTAL ASSOCIATION—Oberlin, May 12, 1891.

AMERICAN DENTAL ASSOCIATION, Saratoga Springs, N. Y., August 4, 1891.

AMERICAN MEDICAL ASSOCIATION—SECTION OF ORAL AND DENTAL SURGERY.

The Forty-second Session of the American Medical Association will be held in Washington, D. C., on Tuesday, Wednesday, Thursday and Friday, May 5th, 6th, 7th and 8th, commencing on Tuesday at 11 o'clock A. M.

The following is a list of essayists (with subjects), who have promised to prepare papers for the Section of Oral and Dental Surgery:

1. Address of the Chairman of Section, Dr. Eugene S. Talbot.
2. Adenoid Growth, Dr. W. H. Atkinson.
3. Treatment of Fractures of the Maxilla, Dr. Wm. Carr.
4. Genesis of Contour Fillings, illustrated, Dr. Geo. S. Allan.
5. The Teeth of Invertebrate Animals, Dr. A. H. Thompson.
6. A Study in Comparative Dental Anatomy, Dr. Wm. H. Potter.
7. Rheumatic and Gouty Diathesis as Manifested in Diseases of the Pariental Membrane, Dr. John S. Marshall.
8. Dental Infirmary Patients. The Use and Abuse of Dental Charity, Dr. Richard Grady.
9. Growth of the Cementum, Dr. R. R. Andrews.
10. Remarks on Incipient Necrosis and Caries, Dr. J. L. Williams.
11. Choice of Therapeutic Filling Materials, Dr. W. A. Alport.
12. ———, Dr. J. Taft.
13. Thorough Dentistry vs. Partial Dental Surgery, Dr. J. Y. Crawford.
14. ———, Dr. Thos. Fillebrown.

Other members who desire to read papers before this Section, should, as required by the By-Laws, forward the paper, or its *title* and *length*, to the chairman, Dr. Eugene S. Talbot, 125 State Street, Chicago, Ills., one month before the meeting.

NASHVILLE, Tenn., Feb. 23, 1891.

HENRY W. MORGAN,
Secretary.

CENTRAL DENTAL ASSOCIATION OF NORTHERN NEW JERSEY.

At a meeting held at Newark, N. J., February 16, 1891, the following officers were elected for the ensuing year :

President, C. W. F. Holbrook, D. D. S., Newark ; Vice-President, H. Iredell, D. D. S., New Brunswick ; Secretary, S. S. Hawley, D. D. S., corner Warren and 13th Streets, Newark ; Treasurer, Chas. A. Meeker, D. D. S., 29 Fulton Street, Newark ; Executive Committee : George E. Adams, D. D. S., Chairman, South Orange ; R. M. Sanger, D. D. S., East Orange ; S. C. G. Watkins, D. D. S., Montclair ; W. L. Fish, D. D. S., Newark ; B. F. Luckey, D. D. S., Patterson.

SAN FRANCISCO DENTAL ASSOCIATION.

At the October meeting of the San Francisco Dental Association, the following resolutions were passed endorsing the Dental Protective Association, and its manager, Dr. Crouse :

WHEREAS, Dr. J. N. Crouse, of Chicago, Ill., the chairman of the Dental Protective Association of the United States, is personally known by the president and other members of the San Francisco Dental Association, to be an honest, earnest and enthusiastic worker for the good of the profession, therefore be it

Resolved : That this Association endorse the methods of Dr. Crouse in conducting the Dental Protective Association, and strongly urge every dentist of the Pacific coast to become a member of said Association ; and be it also

Resolved : That a copy of this resolution, signed by the President and Secretary, be forwarded to Dr. Crouse, with permission to insert it in each circular that he sends to this coast.

THOS. N. IGLEHART,

President.

CHAS. E. POST, D. D. S.,

Recording Secretary.

ALUMNI ASSOCIATION OF THE NEW YORK COLLEGE OF DENTISTRY.

Officers : — President, J. Howard Reed, D. D. S., M. D. S., 1881, 32 West 19th street, City of New York ; First Vice-President, John I. Hart, D. D. S., 1886 ; Second Vice-President, J. W. Taylor, D. D. S., 1884 ; Secretary, Vincent M. Munier, D. D. S., 1888, 102 West 95th street, City of New York ; Treasurer, Zachary T. Sailer, D. D. S., 1880, 40 West 33d street, City of New York ; Executive Committee : Chairman, Sherman B. Price, D. D. S., 1880, 13 West 32d street, City of New York ; H. J. Parker, D. D. S., 1883 ; E. S. Robinson, D. D. S., 1889 ; College Committee : Chairman, F. A. Chicherio, D. D. S., 1888, 2852 Atlantic avenue, Brooklyn, N. Y. ; George A. Hull, D. D. S., 1888 ; Edmund D. Frost, D. D. S., 1886 ; Arthur L. Swift, D. D. S., 1885 ; J. J. Strohmeyer, D. D. S., 1884.

THE ISAAC KNAPP DENTAL COTERIE.

The dentists of Fort Wayne, Ind., have organized a local society, to be known as The Isaac Knapp Dental Coterie. S. B. Hartman, A. M., D. D. S., was elected President for the ensuing term, and M. A. Mason, D. D. S., Secretary. The society meets the first and third Tuesday evenings of each month.

M. A. MASON, D. D. S., *Secretary*.

DIED.

In Chicago, Ills., December 20, 1890, Dr. J. Ward Ellis, in the sixty-third year of his age.

In Stuttgart, Germany, January 5, 1891, Julian James Vanderford, D. D. S., in the forty-sixth year of his age.

In Pleasant Valley, N. Y., January 24, 1891, Benn C. Jewett, D. D. S., in the twenty-fifth year of his age.

DR. C. R. COFFIN.

It is with sincere regret that we announce the death, on the 29th of December last, of Dr. C. R. Coffin, of Kensington, at the comparatively early age of sixty-five. Dr. Coffin was born and educated in the United States. He studied his profession at Boston, and obtained his qualification at Baltimore College in 1853. In 1855 he came to this country, where he has practiced ever since, for a few years in Manchester and since then in London. Dr. Coffin's health had been failing for some time, and his friends had long ceased to entertain any hopes of his ultimate recovery. He had not taken any active part in the practice since 1885.

He made some interesting experiments on the properties of gold foil in removing the excess of mercury from amalgam fillings, but the main sphere of his work lay in private practice. In Dr. Coffin we have lost one of those American dental surgeons of whose fellowship we are proud, and whom we gladly welcome to our professional circle.

In accordance with a frequently expressed desire, the remains of Dr. Coffin were cremated on January 2, 1891.—*The Journal of the British Dental Association*.

BOOK NOTICES.

Owing to the fire described in another part of this journal, we are unable to notice several books sent us through the kindness of their publishers. The books are safe, as the editorial rooms of the DENTAL ADVERTISER, and the Dental Library, were located in an adjoining building that escaped injury.

We will endeavor in the next issue to do both publishers and authors justice.

BOOKS RECEIVED.

LA MEDICINA PREVENTIVA. Trabajo leído el Congress Medico Regional de la Isla de Cuba, Celebrado en enero de 1890, y publicado en su libro de actas, por Erastus Wilson, Médica-Cerujano-Dentista. Habana, 1890.

ON THE DANGERS ARISING FROM SYPHILIS IN THE PRACTICE OF DENTISTRY. By D. Duncan Bulkly, A. M., M. D., New York, N. Y.

THE FRANKLINIC INTERRUPTED CURRENT, or My New System of Therapeutic Administration of Static Electricity. By William James Morton, M. D., New York City, Former Professor of Diseases of the Mind and Nervous System, University of Vermont; Ex-President New York Neurological Society; Consulting Neurologist New York Infant Asylum, etc., etc. Reprinted from the *Medical Record*, January 24, 1891.

PROCEEDINGS OF THE NATIONAL ASSOCIATION OF DENTAL FACULTIES. Seventh Annual Session. Excelsior Springs, Mo., August, 1890.

REVUE INTERNATIONALE DE BIBLIOGRAPHIE, MEDICALE, PHARMACEUTIQUE ET VÉTÉRINAIRE. (Revue mensuelle analytique.) Publiée avec le concours du Docteur Pierre Budin, Professeur agrégé à la Faculté de médecine de Paris, etc.; du Docteur Dujardin-Beaumetz, Médecin des hôpitaux de Paris, Membre de l'Académie de médecine, etc.; par le Docteur Jules Rouvier, Professeur de clinique obstétricale à la Faculté française de médecine de Beyrouth, etc. Beyrouth (Syrie).

REVUE INTERNATIONALE DE BIBLIOGRAPHIE, MÉDICALE, PHARMACEUTIQUE ET VÉTÉRINAIRE. Dirigé par Le Docteur Jules Rouvier, Professeur de Clinique Obstétricale et Gynécologique à la Faculté Française de Médecine de Beyrouth (Syrie), December, 1890.

SAMMLUNG VON VORTRÄGEN UND AUFSÄTZEN ÜBER SCHLAFGAS, von Dr. H. Th. Hillischer, practischem Arzt und Zahnarzt in Wien. (Compilation of Lectures and Essays on Laughing Gas.) Vienna: William Frick. 1891.

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THE DENTAL ADVERTISER.

VOL. XXII.—BUFFALO, N. Y., JULY, 1891.—No. 3.

ORAL BACTERIOLOGY, WITH SPECIAL REFERENCE TO THE TISSUE CHANGES IN PYORRHOEA ALVEOLARIS.

BY W. C. BARRETT, M. D.

Read before the Buffalo Stomatological Club.

As long ago as 1836, Schwann observed the true character of the yeast plant, and the manner of its proliferation of cells. He seems to have been appalled by the magnitude of his discovery. At that time the theories of Liebig held sway, and chemical affinities and catalysis, with the belief in a spontaneous chemical change, swayed the scientific world. So absolute was Liebig, and with such awe was he regarded, that no man dared dispute him, and so Schwann's wonderful discovery was permitted to bear no fruits, until Pasteur arose and gave a new life to chemical science.

Briefly, the later discoveries in chemistry teach us that the changes of fermentation and putrefaction—in fact, the greater differentiations taking place in organic things—are due to the growth of certain minute vegetable organisms; that in the course of their development they tear down or disrupt the elements of other organic things, and use the materials for building up their own structure.

Just as the mason tears down the old building, separates the bricks and the mortar, using what is suited to his purpose and rejecting the rest, so does the new organism tear down the old and feed upon its tissues. All of the moulds and mildews which are found growing upon cheese, bread, meat, and such like organic matter, are vegetables, then, which are parasitic in their nature.

The moulds, and mildews, and rusts, and smut, and blights which affect the products of the earth, while true vegetables themselves, differ greatly in character from those that are cultivated in gardens. But the same general rules that govern the raising of tomatoes, dominates the growth of these minute organisms. They require a fruitful soil, and proper temperature and moisture. A drought is as fatal to the yeast plant as it is to potatoes. The vinegar fungus, that which changes any sweet solution into vinegar by its growth, will no more flourish in a temperature too low than will corn. You can no more grow a true mould upon a rock than you can a kernel of wheat.

There is, then, in nature an infinite variety of organisms too small to be readily seen by the naked eye, and which, while vegetable in character, yet lack certain characteristics of the larger vegetables. Their number far, far exceeds that of the visible things, and their influence, though silent, is irresistible in the world. They do not germinate in the same manner as large vegetables, for as they are single celled they multiply largely by fission, or division. That is, a single cell grows until it is large enough, when it spontaneously separates into two; these in turn grow and divide, and so they increase in a geometrical ratio until they meet with a limit in the using up of that which forms their food, or in a lack of moisture or heat, or in some change which destroys them.

When the brewer or the baker desires to brew his beer or raise his bread, he puts into the wort or the dough, first being certain that it is of the proper temperature, etc., a little yeast. This is a plant which at once begins to grow by decomposition of the grape sugar in the substances. The sugar is changed, broken up into its constituent elements, and the yeast plant feeds upon it, and increases at an almost inconceivable rate, giving off carbonic acid and alcohol. When this process has proceeded far enough, the brewer cools his mixture to a point at which the yeast plant no longer grows, while the baker claps his dough in the oven, and heats it above the point of growth.

These various forms of microscopical organisms are called fungi, bacteria, micro-organisms, microbes, ferments, etc., and their number is limitless. They do not, like the usual vegetables, produce flowers, or reproduce by means of seeds. Certain classes of them multiply by spores. I cannot spend the time fully to define a spore, any further than to say that it is an infinitely minute embryo of the fungus or organism—the reproductive body of the cryptogamous plants. They are wafted in the air at all times, but of course in cold weather or localities, or in those remote, they are not as frequent. Thus, upon the summits of high mountains, in the middle of great seas, or in the Arctic regions, they are comparatively rare. In the winter, in this climate, you all know that fermentation and putrefaction are slow, or entirely suspended. A dead

body will lie out of doors a long time without decomposition. But in summer, an unusually hot and damp day causes a dead body almost immediately to commence putrefaction. These spores, in warm weather especially, are being given off by the minute growing bodies in inconceivable number. They float upon the air until they meet with the proper media for their growth, when immediately they commence to proliferate, and, in turn, to shed their spores.

Of course there are innumerable multitudes of them constantly floating about, and upon every organic thing there is an incessant shower of these spores, but each chooses its ground, and only the one which finds the proper conditions takes root. If a plant or animal is in a healthy condition, it is probable that not one of all the millions that come in contact with it will find a soil that will enable it to grow. But let the plant or animal become weak, or meet with an accident, and at once some organism will attach itself to the spot. In an old pasture-field, perhaps, not a single mullein-stalk can be seen starting in the spring, but let the ploughman strike a furrow across it, or let a boy try to dig out a woodchuck, and straightway you will see a row or a clump of mulleins spring up. The seeds were being wafted about, but until a wound was made in mother earth they could not take root.

The following table will indicate the relation of these organisms to the rest of the vegetable world. The classification is that of Dr. W. D. Miller, as given in his "Micro-Organisms of the Human Mouth," a work which every dentist who desires to know anything of oral pathology should purchase and carefully study.

PLANTS.	Cryptogams, Flowerless plants reproducing chiefly by spores.	Thallophytes. Leafy Cryptogams.	Fungi..... Algae. Lichens.	Fission-fungi (Bacteria), Schizomycetes.
				Mould-fungi (Moulds), Hyphomycetes.
Phanerogams, Flowering plants reproducing chiefly by seeds.				Bud-fungi (Yeast), Blastomycetes.
				Animal-fungi (Pilzthiere), Mycetozoa.

Fungi consist of cells without chlorophyll, subsisting on organic substances.

Algae are cells with chlorophyll, subsisting on inorganic matter.

Lichens are combinations of cells with and without chlorophyll, living on inorganic substances. (Chlorophyll is the green coloring matter in the leaves of phanerogams, leafy cryptogams, algae and some lichens.)

The fungi are also named according to their form, although this division has nothing to do with their character or method of growth. The Cocci forms are spherical, or nearly so. The Micro-cocci are single, and the Diplo-cocci are double, while the Strepto-cocci are chain-like forms.

The Bacili are rod-shaped; the Leptothrix are thread-like. Vibriones are rods or threads with a slight undulating curve, while the Spirilla are rigid rods or threads with screw-like windings.

The character of these various microbes, or fungi, varies greatly. Some are mere parasites, which do no more than to grow and multiply, while others are true pathogenic organisms, and are themselves the seeds of disease. The microbe of cholera, or small-pox, if it finds fair entrance into the system, inoculates for that disease. Cholera is but the inordinate growth of a bacillus within the human organism, and the poisoning by the products of its multiplication. As alcohol is one of the by-products of the growth of the *Torula*, or yeast plant, so another poisonous substance, or ptomaine, is the product of the comma-bacillus of cholera, and the patient, besides the fever and irritation produced by the presence and growth of the innumerable organisms, is poisoned by these products. An analogous condition is presented in all the so-called zymotic diseases.

The human mouth is the great breeding-place of numberless kinds of organisms, the spores of which are constantly with us. As we sit here now they are constantly being taken into the mouth and respiratory passages. There may be the germs or spores of various contagious fevers, of ulcers, of skin diseases and of tubercle, floating about in this atmosphere, and entering our mouths and noses, our eyes and our ears. Usually they get no farther, but are overcome before beginning their growth. But if the system be a little reduced in tone by illness or fatigue, by breathing a vitiated atmosphere or by unhygienic conditions, the invaders are not met at the threshold and overcome; they enter and obtain a foothold, and the victim goes through a course of an eruptive fever, perhaps.

Let me repeat that the mouth is the great breeding-place of these organisms, for there are found all the favoring conditions for their growth. In the starches and sugars which cling about teeth and tissues that are not scrupulously cared for, may be found the exact soil in which these microbes, or vegetable fungi, grow best. There is almost the precise temperature—in the neighborhood of 100° F.—in which most of them delight. There is plenty of moisture of the exact consistency in the mucus and the saliva. As a consequence, all mouths are tenanted by more or less of them. The principle difference between a clean and an unclean mouth is in the character and number of them, the filthy mouth containing those of a more virulent nature.

Wherever there is a cavity in a tooth, or an artificial plate, or a sulcus or pocket, it will be found swarming with bacteria of different kinds.

Miller classes about one hundred of them, and declares that he has scarcely begun the work. He has specially cultivated some of them, and determined their character, and what are the by-products of their proliferation, or growth. He determined the micro-organism of caries of the teeth, and showed that one of its products was lactic acid, or something which he was unable to distinguish from that. Let me repeat, then, that in every pocket or sulcus of the mouth a swarm of bacteria may be found.

These organisms may induce certain structural or tissue changes. Miller's "Delta" bacillus caused true caries of a tooth outside the mouth; so if other bacilli obtain lodgment in a pocket, and reach the bone or alveolus, they may cause a caries of that tissue, a wasting of the bone and its products. They may produce not only an inflammation of the soft tissues, but of the bone corpuscles also, so that from them we may get not only *ostitis*, but a *stomatitis* as well.

I promised you that I would say something about the micro-organisms of the mouth, with a special reference to pyorrhœal conditions. I have reached the point of the application of this long exordium.

According to the by-laws of this Society, we cannot with propriety consider this subject from a simple professional point of view. We must examine it in its scientific aspects. That is just what I have been and am now doing.

What is *Pyorrhœa Alveolaris*? As it presents itself to the eye it consists of a pocket or space between the tooth and the gum or its socket, with a peculiar red or purple color of the soft tissue, inflammation, either acute or sub-acute, and an exudation of pus that is more or less constant. Miller says that it is "a chronic suppurative inflammation of the periosteum, with more or less severe inflammation of the gums, and necrosis of the alveolar process of the diseased teeth." Pathologists are not agreed as to its origin or cause, some believing it largely due to heredity, some to constitutional, and some to local causes. Among the systemic causes, different observers have ascribed it to *scrofula*, *catarrh*, *alcoholism*, *uterine disorders*, *rachitis*, *rheumatism*, *malaria*, *dyspepsia*, *syphilis*, *anaemia*, and wasting diseases of various kinds. One observer attributes it to the use of salt with the food; some believe it to be a disease of the alveolus, some of the *pericementum*, and yet others that it proceeds from the teeth; but all agree that it is a septic condition, and that some of the many forms of parasitic fungi accompany it, while a part hold that it is due to a pathogenic and specific organism. Galippe, of Paris, made pure cultivations of the fungi found in pyorrhœal pockets, and segregated at least two organisms, inoculations of which produced septic conditions. But no one has yet been enabled distinctly to exhibit a single micro-organism that may be said to be peculiar to the condition, and I believe that

Galippe himself has finally concluded that there is no specific fungus of pyorrhœa.

But that it is infectious, proves that there must be some organism capable of transmitting it. If there be no specific organism which produces and is peculiar to it, at least organisms of some kind accompany it, and it may be said to be a septic disorder. That the teeth have something to do with it, seems to be demonstrated by the fact that when they are extracted the disease is eliminated. That it is not due to many attributed constitutional diatheses, is proved by the fact that animals which are not subject to some diseases to which it has been ascribed, are liable to it. Dogs frequently are attacked by it, and I have the skull of a gorilla which bears unmistakable evidence of its ravages.

The real cause of pyorrhœa has not, in my opinion, yet been determined. If it be due to a specific fungus, that organism has not been ascertained or segregated. If it be the sequela of some constitutional diathesis, that peculiar condition has not been established, for none has so far been determined as the necessary concomitant of the disease. It commonly attacks adults, yet it has been observed in children of four years of age. Miller found that rachitis seemed to furnish a special predisposition to the disease. The teeth of rachitic children are usually lost early, but he does not hold that pyorrhœa is attributable to any single cause. He says, in his "Micro-Organisms of the Human Mouth," page 330:

"In my opinion, three factors are to be taken into consideration in every case of pyorrhœa alveolaris: (1) predisposing circumstances; (2) local irritations; (3) bacteria."

This seems to be as near as we can, in our present knowledge, come to the etiology of this very common disease. About the neck of a tooth in the mouth of a person constitutionally predisposed, a pocket is formed, either through the deposit of calculus or by a traumatic injury. This reaches the alveolar border and the edge of the pericementum, and is infected by entrance of some of the organisms constantly present in the mouth. The pericementum suppurates, while a caries of the edges of the process ensues, with the characteristic inflammation of the gum tissue. The pathological condition may run its course in a short time, the tooth being lost through loosening, or it may continue for an indefinite period. Miller relates a case in which, three weeks after the commencement of loosening of the teeth, all the superior incisors were irretrievably lost, two falling out spontaneously, and it becoming necessary to remove the others. The trouble usually spreads from one tooth to another if it commence at a definite point. Sometimes the progress is slow, but I have seen every tooth in the head affected within a few days, apparently from a single point of infection. The disease usually is only limited by the loss of the affected teeth, and the destruction and obliteration of the socket.

The definitive changes, then, are: the pocket once formed and infected with septic organisms, an irritation and inflammation of the vascular tissues succeeds, perhaps due to the more direct action of the fungi, or possibly consequent upon the changes in the tissues beneath, with an ostitis and caries of the bone due to the secondary products of the growth of the organisms, and a suppurative condition of the pericementum dependent upon a pyogenic organism. All of these pathological changes are possible because of some predisposing diathesis, or a condition of atony.

The disease once established, the prognosis is not favorable, so far as a radical cure is concerned. There always exists the possibility, in most cases the probability, of its recurrence. The treatment does not come within the province of this paper, nor could this Society entertain a question of professional practice. At another time and place this may be presented.

THE CHOICE OF MATERIALS FOR FILLING TEETH.

BY DR. W. W. COON, ALFRED CENTRE, N. Y.

Read before the Eighth District Dental Society of the State of New York.

Since no one material has all the qualities desired for use in various cases of caries of teeth to be treated, a choice of material is necessary for each individual cavity to be filled.

To rightly choose, it is necessary to study the needs of the cavity, their differing conditions, locations and environments, determining the attributes possessed by the material that shall best serve the tooth. No set of unbending rules can be made by which one may determine to which class or order any cavity belongs, and which shall unerringly pronounce what will best answer the demands of the case, other than the general principles upon which our operative system is based.

The object of this paper is to put before you for discussion and criticism some of the indications for the use of tin foil, and soft gold foil. Tin is never spoken of as a bad tooth preserver. It occurs in nature as an oxide, (stannic oxide— Sn, O_2). It is a silver-white metal, softer than gold, harder than lead, and is crystalline in composition. A bar, when bent, emits a creaking sound, called the cry of tin, caused by friction of the crystalline particles. Its greatest ductility is at 212° Fahr., when it may be drawn into fine wire, which, however, is not strong, though very flexible. Warming pellets of foil to 212° Fahr., however, does not better its working qualities as a filling material.

For our young patients, whose teeth are not sufficiently matured to be filled with gold, tin may often be used in well chosen cases with good results. In anterior approximal cavities, where cement or gutta-percha is commonly employed, and when considerable time must elapse before gold may be used to advantage, such fillings may need renewing. If the patient is careless and does not return for examination as directed, but waits until slight trouble prompts a call, we often find the cavity in a worse condition than when first filled, the walls having for some time been exposed to disintegrating influences. In this class of cases a more enduring material would be preferable; one that, without discoloring the dentine, would protect the tooth until gold can be profitably used, and tin foil will more nearly meet the demands than any other material. I have used it for some time with increasing satisfaction, its softness allowing perfect adaptation to a poorly calcified, frail wall. Contour may be restored with it on surfaces that do not too largely involve the cutting edge. The surface exposed to sight may, if desired, be covered with soft gold. Most cavities, when well prepared for cement, would be sufficiently excavated for tin, its good adaptation insuring its retention in a cavity with little undercut.

My manner of using it is to crimp one-fourth of a sheet of No. 4 foil, and cut it into pieces according to the size and location of the cavity, condensing by hand pressure, using comparatively small pointed instruments with serrations well defined, burnishing and finishing with strips, discs, etc., as with other foil fillings. The mechanical mallet is sometimes useful in finishing, inserting a small-faced foot instrument. Time is saved by the application of the rubber dam, as one can then use two instruments in starting and building up the filling.

The utility of such fillings is not confined to the anterior teeth, for it answers an equally good purpose when placed in the approximal and masticating cavities of bicuspid and molars, a gold surface protecting the tin from the wear of mastication and making the filling yet more permanent. I have never yet seen such fillings, or the tooth substance surrounding them, disturbed by electro-chemical action, nor would I anticipate any such effects. Such a filling is a poor conductor of the extremes of temperature, thereby in a measure compensating for an imperfect and abnormally sensitive tooth structure. Frequently the gold surface will not be found necessary, or particularly desirable. In my rather brief experience I have been somewhat surprised at the length of time some of these fillings protect the cavity, as well as to find some of them badly worn, and also to see some that have succumbed to the action of deleterious secretions or formations in the mouth. But even in the less favorable cases the tooth substance will be found in a better condition than when the filling was inserted. Whether this be due to the

good adaptation, or the therapeutic effect of the material, is of less importance than the fact that it is usually the case, and that it is a justification of the choice of the material used.

SOFT OR NON-COHESIVE GOLD FOIL.

The merits of soft foil as compared with cohesive in its tooth-saving properties, are quite universally conceded, but it is urged that contour work can not be done with it, and that the return to its more extended use is a retrogression. The transition from cohesive gold to soft is easy if the use of the former has been well learned, but the change from soft to cohesive, to one who has never acquired dexterity in the latter, is very difficult. This last statement was questioned by Dr. E. B. Davis, of Concord, N. H., in a paper entitled "Soft Foil and Progressive Dentistry," read before the New England Dental Society, November 15, 1888.

He says, concerning the change from soft to cohesive foil: "All my teachings and the result of my experience have proved to me the exact reverse, and in confirmation of this side of the question, I would cite the fact that soft foil operators are able to do equally good work with any form of gold, while thousands of dentists who do good work in cohesive foil are totally incapable of working in soft gold." We occasionally wish to use gold in a carious tooth that will stand little pressure and no malleting. In these cases I have often completed small contour fillings with soft gold, using it without annealing, employing hand pressure for condensing. These small contours were recorded and watched as occasion permitted. Seeing that they met the requirements, the practice has been continued when indicated.

Often it is an advantage to line the cavity with tin foil, thereby gaining in adaptation; also saving in tooth structure by a diminished demand for undercut. In a crown already much weakened by decay, this is a point worth gaining.

I have in a few cases put in large contours of soft gold, without annealing, using hand pressure, but the motive was more to prove the possibilities of such work than to fulfill any indications presented, my usual method being to crimp quarter sheets of No. 4 soft gold foil, and as the contour is neared, thoroughly to warm it by passing the crimped piece over the flame before cutting, not letting it get hot enough to redden, and using the mechanical mallet for condensing. A filling thus made requires little burnishing, easily taking and well retaining a high polish. If the gold has been well condensed but not hammered to death, it will be a tough filling, less brittle than one of more cohesive gold. I fully appreciate the usefulness of cohesive foil where it is needed, but its too frequent use where contra-indicated is bringing it into disrepute, and striking a blow at our present system of contouring. Using it from start

to finish in frail teeth, is, in my opinion, a poor way to save them. It may be a pleasant method of filling for the operator, but when patient and operator have experienced the pleasure more than once on the same piece of work, it becomes monotonous.

It is not an uncommon thing to meet with teeth of a bluish-white color, the enamel of which is very thin and almost as brittle as glass. The decay undermines this, affecting only the dentine beneath, and as a consequence a delicate, almost transparent wall is left. If the attempt be made to fill this with cohesive gold and the mallet, the edges are almost certain to be fractured, even if the whole be not crumbled away. But by means of careful hand pressure it is comparatively easy to pack soft gold underneath the overhanging walls until they are perfectly supported, and in this way to preserve the tooth permanently. If there is danger that the gold will show through the enamel, a little oxy-phosphate of zinc may be plastered against it.

Dr. George S. Allan, in a paper entitled "Theory and Practice in the Treatment of Proximate Surfaces," read before the anniversary meeting of the First District Dental Society of the State of New York, January 15, 1890, says: "Standing by the chair of one of our ablest men in a neighboring city, I watched him as he excavated several places preparatory to doing genuine patch-work around some gold fillings. As I watched him, he told me of the great trouble he had experienced in doing anything satisfactory for this patient. Sooner or later decay recommenced, and he had about abandoned all thought of attempting what would be called permanent work, and so for the time being his reliance was on gutta-percha. All this he said in the presence of his patient, an intelligent, cultivated lady, to whom evidently the story was far from new. In fact, as we talked, she took part in the conversation, and showed much good sense and judgment, and a kind appreciation of all that had been done for her. I could not but admire the straightforwardness and honesty of my friend, and said as much, and was thoroughly convinced in my own mind that he had adopted the very best plan to minimize pain, trouble, and expense for his patient, and, at the same time, give her the use of her teeth for the greatest length of time. Though it was not put in so many words, it was a confession of judgment on his part that contour work and hard gold fillings would only result in continued failures, and jeopardize both his reputation and his patient's teeth."

This to my mind is the result of the use of cohesive foil where contra-indicated. Each individual operator will naturally choose the materials and methods that are best suited to his capabilities. If this choice designates ways and means that are contra-indicated by conditions presented, then it is his plain duty to educate himself to the best use of the surest means for meeting the indications.

POPULAR DENTAL EDUCATION.

BY DR. W. C. HAYES.

Read before the Eighth District Dental Society of the State of New York.

Most of you have such delightful associations with your patients that the thought of doing missionary work to educate the "dear people" is probably an infrequent one. Perhaps the title "Missionary Work" would sound better than "Popular Dental Education," but in my estimation the terms are interchangeable.

According to Webster, some of the definitions of "Popular" are "Pertaining to the people;" "Suitable to common people;" "Easy to comprehend;" "Not critical;" "Familiar; plain; enjoying the favor of or pleasing the people in general;" "Extensively prevalent."

To create such a system of instruction as would "enjoy the favor of the people, and become extensively prevalent because it was suitable to common people, easy to comprehend, and plain," is a consummation devoutly to be wished. How to disseminate such knowledge is a problem which may well engage the attention of dental organizations. The class of people most in need of such information is not reached through any of the present methods of popular instruction, such as lectures, meetings of the Societies of Natural Sciences, etc.

All of us instruct our patients more or less, but there are thousands, even in this city, who have not the slightest knowledge of their teeth, save the knowledge of their presence. These are the ones who need such instruction. Look at the two hundred physicians in this City, with one-quarter as many dentists! How many people have no need of a physician from one year to another? How few have no need of a dentist? Taking their individual teeth, each one of these persons possesses thirty-two separate patients, any one of which may need a dentist at any time, every one of which will in due time.

Dr. White said "There can be no question as to the importance of a wide diffusion of information in regard to the care of the mouth and teeth, and an effort to awaken a general interest in the prevention and arrest of decay and consequent loss. A better appreciation of the causes of deterioration and the means by which they may be counteracted is essential. Dental colleges may multiply, and each year send out their hosts of graduates; legislatures may pass laws regulating the practice of dentistry, etc., etc., but the great remedy is the education of the masses; they must be made to realize the priceless value of their dental organs. Fathers, mothers and children, must be made to understand that neglect which involves the loss of the teeth is inexcusable and suicidal."

What would be the impropriety if dentists should give plain talks occasionally in lodge-rooms, such as the A. O. U. W., E. O. M. A., K. of L., etc., young people's societies, or even in the school-rooms? Physicians respond to invitations from such sources, and give much valuable information on general subjects pertaining to the preservation of health, and such special subjects as the care of the eyes, the preservation of hearing, etc. If it is not unprofessional for them, with their iron-clad codes of ethics, why may we not do something "*pro bono publico*"?*

We as dentists claim to be a progressive set of men. Progress is the law. When that stops, decay begins. To stop is to retreat, to shrivel. We must overcome the difficulties of prejudice and of ignorance. There should be law, truth and harmony. We should disseminate truth and do it harmoniously.

What are we going to do about it?



THE GENESIS OF CONTOUR FILLINGS.

BY DR. GEORGE S. ALLAN, OF NEW YORK.

Abstract of a paper read before the Section of Dental and Oral Surgery of the American Medical Association, May 6, 1891.

He claimed that it was generally accepted by the dental profession that the contour filling represents the highest development of the art of conservative dentistry. He thought it a healthy sign of growth that the highest ideal is thus kept well in the foreground. He proposed to confine his remarks entirely within the lines marked out by the title of his paper,—the genesis of the contour filling, or how it is made. So far as he knew, the cardinal rules to be kept in mind in this kind of work have never been presented to the profession in compact form.

He referred to a private letter from an acknowledged authority on the subject, as follows:

"To understand me more completely, I would state that I have not for a considerable time been in favor of inserting very large gold fillings in this manner, and for the reasons you have given in your paper, that the structure and elements of the tooth are not such as to promise a durable retention of the mass of gold by the weakened tooth. But for medium-sized and small cavities, I am equally convinced from long

*The embarrassment in the way of endorsing such action is, that the opportunities are almost certain to be siezed upon by those who desire to advance themselves, and who prostitute the occasion by turning it into an advertisement. This is as true in medicine as it is in dentistry, and because of this the practice is deprecated by the better class of physicians.—EDITOR.

experience and observation of my own and the work of others, that no other method offers the same degree of permanency or usefulness."

In the building or making of a contour filling, a threefold division of the subject naturally presents itself.

I. The preparing of the cavity.

II. The placing therein the filling material.

III. Finishing and polishing the completed work.

Much that may be said about the preparing of a cavity will apply to the simpler and easier operations of face and crown fillings; but this one wide difference must be constantly kept in mind, viz.: as the size of the cavity increases, the difficulties and dangers increase, not proportionately, but in a geometrical ratio, and, therefore, a relatively greater care must be given to all the details of the larger and more complex operation. A few quick, sharp cuts will suffice for preparing a simple crown cavity, but they would fall far short of filling the bill in any case such as he proposed to consider.

As the architect or engineer sees his completed work before the actual is even started, so should the dentist be able to discern the full size, shape and figure of his proposed restoration; and each step should be so carefully planned and made to fit the next, that in the completed whole nothing may be wanting.

The size and shape of the cavity, the proper distribution of retaining undercuts or pits so as to protect and strengthen weak walls and throw the burden on the strong ones, requires good judgment. Just here may be found the cause of many failures. Undercuts are made too deep, and retaining pits made in such positions as to either weaken the tooth or endanger the pulp. Deep undercuts, though they make the operation easier, are seldom called for, and endanger the completed work; and this they do in two ways: first, by weakening the walls, and second, by making real obstacles to forming a homogeneous, well-packed filling.

The deep undercut, though it holds the great bulk of the gold in place, is itself difficult to fill. To do so well, requires much time and care, and the use of exceedingly small pluggers. Where all the walls of a cavity are standing, and the face of the tooth adjacent to the cavity is perfect, the walls of the cavity should be left as nearly parallel as possible, and no pits of any kind made. In fact, nearly parallel walls should be the rule, and pits always avoided when possible.

Judgment is specially called for in those cases where the natural face or faces of the tooth have been lost, either by decay or the too free use of the file and chisel; for, as will be referred to a little later on, in speaking of packing the gold, a point of considerable interest arises in these cases, as to whether the filling should be allowed to overlap the walls of the cavity, and simply lie against the face of the tooth on the

outside, or whether it shall be made continuous with the walls of the cavity and bulge only from the cavity itself.

Believing that overlapping gold is gold in a dangerous position, he strongly advocated such a preparation of the cavity as would minimize this danger, even if by so doing the full realization of one's ideal in contouring be not carried out.

It is a sort of a belief with many, that in all cases the packing of the gold should be commenced at the cervical wall or base of the cavity. This is a mistake. Oftentimes more certain and rapid work can be done by starting the filling back in the grinding-surface and building downwards, and so this point should be considered, and the cavity shaped accordingly.

As the enamel forms the edges of most large cavities, its proper management is a matter of importance. He had advocated in a paper read before the New York Odontological Society the complete removal of the thin edge of enamel often found at the neck of the tooth, for the double reason that it was only slightly adherent to the dentine just there, and so liable to split off during the operation of filling, and secondly, it is very difficult to make a smooth edge on it.

Since that date he had seen no reason to alter his judgment in respect to this method of practice, but had had many confirmatory ones brought to his notice. Leaving the thin edge leaves a weak spot.

A final point to be observed in shaping the cavity consists in making the edges smooth and polished; and just here the great advantage of the dental engine, with its rapidly revolving bur, comes to the front. No hand-instrument, no matter how much care is used, can compete with it. A sharp, well-cut bur will do in a few moments far more effective and perfect work than the sharpest hand-instrument can in a far longer time. If, in addition to the bur, the edges are polished with the wood point armed with powder, or still better, with an uncut round iron point armed with diamond dust, perfect edges can be quickly obtained.

The most important part of the work, and the one in connection with which probably more science and skill can be employed than in any other, are the perfect adaptation of the gold to all the walls of the cavity, and the accomplishment of this with a minimum amount of force. A third essential may be added,—that the filling be made homogeneous and solid throughout.

Imperfect adaptation makes failure almost a certainty, and undue force—any amount of force over and above that required to condense the gold—is almost equally fatal in the end. How, then, first of all, should we proceed to make the gold fit the cavity?

The quality of the gold made use of in building up a filling of this character—viz. : its welding property—is one not to be lightly esteemed.

It is our servant if we handle it rightly, our master if we treat it improperly.

In skillful hands, pure gold is almost as pliable and obedient to the touch as the clay the sculptor uses to fashion the child of his fancy; but there is this difference: the clay can be worked over and over again,—a little added here, and taken off there,—and so long as it is kept moist, it responds to the brain back of it; not so with gold. Place a bit in position in such a manner as to insure perfect contact with that already in place, and the union will be perfect, and it becomes a part of it; but this cannot be tried a second time; the first is the only one that will be allowed. If it does not take its proper position at once, something is wrong, and cannot be made right by using extra force. The moment that is done, the evil that resides in the metal, and that heretofore has been dormant, manifests itself. It becomes stubborn, brittle, and cranky, and persists in doing everything except what is wanted of it. Like some individuals, it has a dual nature, and we must beware how we call out the perverse side.

Then, again, the amount of force used must always be proportionate to the size of the pledget to be packed, and exactly that. Too little force fails to insure solidity, and too much has a tendency to bring out the harsh qualities alluded to. As the pledget must be packed in the exact position in which it is first placed, and cannot be moved from it, great care and good judgment are required to avoid pits, and to make certain that the surface is kept even, for it is much more difficult to fill a pit or sharp depression than to continue a flat surface; and the permitting of pits near the walls of the cavity is especially to be avoided, for the extra force necessary to fill them too often weakens the walls, or even crumbles the enamel. So, the rule to be observed is, as far as possible, to carry a uniform surface upward, and, as the filling grows, to keep the marginal portions a little in advance of the center.

Another advantage that results from this plan of procedure is that larger points may be used. A pit or depression near the walls necessitates the employment of small points, for the point in use must always be a trifle smaller than the pit to be filled. This suggestion is by no means an unimportant one, and a little thought will soon convince one of that fact. The correct packing of gold is, in truth, an art of itself, and requires an educated touch and correct eye.

Where to start a filling is a matter of some moment. It is generally commenced at the cervical wall, but cases frequently occur where the commencement may be made with advantage back on the grinding-face of the tooth, and the filling carried backward or forward to the floor of the cavity. An advantage frequently arises from this method, for by carrying it along the sides of the cavity toward the bottom any movement

of the gold is avoided, and pits to accomplish this purpose are not required. Anyone who has not tried this plan will be astonished to find how frequently it facilitates the operation. Deep pits are only admissible when other means fail to accomplish their purpose.

The manner of making a filling leads naturally to a consideration of the points to be used, their shape, and the best methods of applying the force necessary for condensation of the gold. If the gold is to be built up layer by layer, in a series of plains, the thought naturally suggests itself that the shape of the points should conform to that of the plains themselves,—in fact, should have flat surfaces,—and this will be found to be a correct statement. The late Dr. Varney was the first to incorporate this principle in a series of pluggers especially intended for packing cohesive gold, and the set made from patterns furnished by him stand unequaled to this day for their splendid adaptation for contour work. The points all have plain surfaces, and are very finely and evenly serrated. Slight modifications only have been made in them since his day, so completely did he work out his theory in steel.

A round point may have some limited utility at times, but never can be relied upon to any extent. It would be a matter of the greatest difficulty to make a large, uniformly packed filling by their use only. Deep serrations are faulty, in that they cut the gold and require extra power to force it into a solid.

How to apply the requisite pressure is probably the most important consideration of all—how to apply just enough force for the purpose, and to apply it quickly, uniformly and evenly. How to apply the *quantum sufficit*, and no more, so as to give the patient the least discomfort, and lighten the labor of the dentist, is a serious problem.

Few would seriously consider hand-pressure alone as offering the best solution. Besides being the most laborious and tedious method, it rarely produces perfect work. We cannot get along without it, especially in commencing operations; but good judgment demands that it be supplemented by some means more under control, more direct in its action, and developing more power, and this can only be done by resorting to some one or more of the various devices which the ingenuity and thought of the profession has placed in our hands for using the power of momentum, or in plainer terms, the mallet.

The late Dr. Atkinson, whose memory we hold in respect, and whose loss we deplore, was probably the first to suggest this means of obtaining the desired end, and in his hands and in the hands of his followers the hand mallet was made to do most excellent service; but it was soon found that it offered only a partial solution of the problem. To mallet for oneself was awkward and oftentimes impracticable, and it was found impossible to make two brains work in harmony. The automatic mallet

in some of its various forms took its place, and will probably always retain a well-deserved place in the dentist's outfit. Then followed the electric mallet—a step in advance, and a big one; but it had many inherent defects that greatly impeded its general adoption.

To-day the mechanical mallet is slowly but surely coming to the front, and the day is probably not far distant when it in some of its modifications will supersede all others.

Let it be premised that the more closely the force to be applied can be made to simulate hand-pressure, the better it will be in all ways—safer for the tooth and easier for the patient to bear. This is just what the mechanical mallet does; it is pressure intermittently applied, and in nowise is to be likened to the hammer-like blow that is given either by the hand mallet, the automatic or the electric.

If we take a look at the mechanical mallet in operation and notice how it works, we will see that the point is placed in contact with the gold and gently pushed forward. This throws the farther end of the mandrel holding the point back, so that the lug or rounded bit of steel with which the rapidly revolving wheel is armed comes in contact with it, and it is pushed forward; and this is repeated with every revolution of the wheel, so that from one thousand to three thousand impulses may be given to the point every minute, the direction, number, and power of these impulses being perfectly under the control of the operator.

Dr. Allan employs the Bonwill mallet, as modified by Dr. S. G. Perry and Mr. Weber. There are eighty threads to the inch in the adjusting-screw, and forty notches in the collar, so that the movement of the collar one notch brings the plugger mandrel $\frac{1}{3200}$ of an inch, or the thickness of the diameter of a human blood-corpuscle, nearer to or farther away from the revolving wheel; and yet, small as this distance is, it is distinctly appreciable to the operator and patient alike. It looks reasonable that a forward push movement of the point through these small distances must be comparatively safe, and can be made to expend itself in the packing of the gold, and the packing only.

A valuable point is that where the serrations of the point are rightly made, that is, having one side longer than the other, the point travels over the surface of the filling and has simply to be guided by the operator, so that if placed near the centre of the filling it will move over the face of the gold in just the direction and manner required. Thus it becomes the easiest thing in the world to pack toward the walls of the cavity. The gold is plastered into position, as it were, easily and rapidly.

The kind and quality of the push can be regulated in several ways other than by the adjustment collar. By increasing or diminishing the speed of the motor a great change is at once perceptible, and again the educated hand will hold the point against the gold so as to insure perfect

packing, and no force wasted. In fact, through a wide variation of power it is under perfect control.

The finishing is a matter of detail, and often sadly neglected. Too high a polish cannot be given to the perfected work. Do the best we can, we will fall far short of nature's model. Time and labor cannot be thrown away if intelligently employed in the finishing.

In packing gold, solidity and homogeneity are essential considerations. A filling that is hard enough to resist pressure and is perfectly adapted to the walls of the cavity will prove effective, but perfect adaptation and the requisite hardness as a rule also mean homogeneity, though not always. It is not only far easier to finish a uniformly dense filling, but the work can be done in a shorter time and always in a more satisfactory manner. It is discouraging labor to attempt to put a finished surface on an imperfectly packed filling.

When a tooth has been mutilated by disease, or by the file and disk, as before mentioned, a question often arises as to whether the gold shall be allowed to overlap the edges of the cavity, or simply be rounded out from them. It is doubtful whether gold can be made to lie against tooth-substance in such a manner as to prevent the ingress of fluids. The thinner and deeper or thinner and wider the overlapping gold, the greater the doubt and uncertainty. If the diameter of the gold is one-third or one-half greater than that of the cavity, trouble is almost certain to occur in the near future.

The difficulty in making a perfect edge is also greatly increased in these cases, and so it is a safe rule to observe, to finish the gold to fit the cavity and to take the place of an overlapping lid as little as possible.

In shaping, the articulation should always be left in such a condition that the filling should in mastication be pressed back into, not out from, the cavity.

As a means of education, no method is equal to that of making fillings out of the mouth. Anyone who has not tried it will be surprised at the amount of instruction that can be acquired in this way, and in no other. Any earnest worker who makes the experiment will be astonished to find that the operation is not easy even under these simple conditions. His edges will remain imperfect, and his powders will scratch, and he will wonder how he ever succeeds in the mouth.

Dr. Allan summed up by advising that in preparing cavities care should be taken to avoid deep undercuts or pits, to make as little strain on the enamel as possible, and to make clean, polished edges. In packing the gold, it should be borne in mind that the filling must be homogeneous throughout, and built up in a series of plains; and that, in finishing, nature should be imitated in the high polish put upon the work, for when we do our best we will fall far short of her beautiful handiwork. To do

perfect contour work requires care and skill and a conscientious regard for all details. With practice and experience one will be surprised to find how often the impossible becomes possible, and the difficult easy of attainment.— *Dental Cosmos*.

THE PRESENT CONDITION OF ANTISEPTIC SURGERY.

BY SIR JOSEPH LISTER.

Address delivered before the Tenth International Medical Congress, Berlin, August, 1890.

At the International Congress, in London, in 1881, Robert Koch demonstrated in King's College his then new method of cultivating microbes upon solid media. The illustrious veteran Pasteur was present at the demonstration: and at its conclusion exclaimed: "C'est un grand progrès, Monsieur." How vast have been the extensions of our knowledge which have resulted from that great step in advance! Of these none perhaps have been more striking than Koch's own brilliant discovery of the cholera microbe; picked out with unerring precision by his beautiful method from among the multitude of bacteric forms that people the intestinal contents, and grown and studied with as much definiteness as if it were a cabbage or a rose.

But while we have during the last nine years learned so much more of the nature and habits of the micro-organisms which invade our bodies, a new and surprising light has been thrown within the same period upon the means by which the living animal defends itself against their assaults. This we owe to the eminent naturalist Metchnikoff, who, having long carefully studied intracellular digestion in the amoeboid cells which form the main mass of the bodies of sponges and other humble organisms, was prepared to observe and rate at its true value an analogous process in the wandering leucocytes of vertebrata. He found that these migratory cells, with whose amoeboid movements we have been long familiar, feed also like amoebae, and while almost omnivorous in their appetites, have a special fondness for bacteria; taking them into their protoplasmic substance and digesting them, thus preventing their indefinite propagation among the tissues. The cells which exercise this devouring function he termed phagocytes.

Various objections have been urged against Metchnikoff's views; but so far as I am able to judge, he has met these effectively by his masterly series of researches; and his observations have been confirmed and extended by several independent investigators. For the sake of those among my audience who may chance not to be familiar with Metchnikoff's work, I am tempted to relate briefly some of his experiments. The green

frog, below the temperature of 20 C. (68 F.), is incapable of taking anthrax: the bacilli of that disease cannot grow when introduced under the skin of that animal. To what was this immunity of the frog to anthrax due? Were its juices an unfit pabulum for the microbe, or was the phagocytic action of its leucocytes the explanation? In the hope of solving this question Metchnikoff formed a tiny bag out of the pith of the reed, and having placed in it some spores of anthrax, closed the bag and inserted it beneath a frog's skin. The pith wall of the bag allowed the animal's lymph to penetrate by diffusion, but excluded the leucocytes; and the result was that the spores sprouted and grew into luxuriant threads of anthrax in the lymph, which was thus proved to be a suitable medium for the growth of the bacillus. Meanwhile under another part of the skin of the same frog had been placed a small piece of the spleen of an animal that had just died of antrax and contained the microbe in its most virulent form; but there, the leucocytes having free access, no growth occurred.

Another experiment on the same principle was still more instructive. It consisted in introducing the spores of anthrax into the anterior chamber of the eye of a frog, which, as we have seen, is naturally insusceptible of the disease, and also into that of a sheep and of a rabbit made insusceptible of it artificially by "vaccination" with Pasteur's attenuated virus. The aqueous humor of the healthy eye contains few, if any, leucocytes to interfere with the perfect transparency essential to vision. Accordingly the spores sprouted and grew for a while freely in the anterior chamber. Meanwhile the growth of the bacillus occasioned irritation to the eye, resulting in the immigration of a constantly increasing number of leucocytes, producing turbidity and in time hypopyon. If a drop of the aqueous humor was withdrawn at an early period after the commencement of the experiment and examined with the microscope, it was found to contain anthrax bacilli; some of them free in the liquid, but others enclosed in the bodies of leucocytes. But a drop taken after a longer period had elapsed showed no free bacilli, all being now within the leucocytes and exhibiting signs of degeneration in various degrees as the result of their advancing digestion. Finally the anthrax disappeared entirely and the eye cleared up, the animal in all cases remaining healthy, although inoculation into the aqueous humor proved a peculiarly deadly mode of infecting a susceptible animal.

Here we see that the inflammation excited by the microbe becomes, through the medium of the leucocytes, the cause of its destruction. How little can the lamented Cohnheim have dreamed that his observation of the emigration of leucocytes in inflammation would prove to have so far-reaching a bearing upon the pathology of infective diseases.

I have brought before you two samples of the kind of evidence upon which the phagocyte theory rests; and if we accept it, as I believe we

must, it serves at once to explain much that has hitherto been mysterious in the relations of micro-organisms to wounds. Take for example that which the surgeon makes for the cure of harelip. Its posterior edge is perpetually bathed with the saliva, which contains many kinds of septic bacteria. But these do not enter and people the fibrin that glues together the cut surfaces, as they infallibly would do if those surfaces were composed of glass or any other chemically inert material destitute of life. It has long been very evident that the living tissues exerted a potent influence in checking bacteric development in such a wound; but what was the nature of that influence? This used to be an enigma, but now receives its natural explanation in the phagocytic action of the cells that crowd the lymph soon after its effusion.

At the London Congress I brought forward an experiment which proved that a blood-clot within the body may exert a powerful anti-bacteric agency. I will not repeat the details of that experiment further than to say, that a very small piece of linen cloth soaked with putrid blood was mounted by means of silver wire in the interior of a short glass tube open at both ends, which was slipped into the jugular vein of a donkey and kept in position between two ligatures. After two days the venous compartment was removed and the coagulum within it investigated. In and near the glass tube it was in a state of advanced putrefaction, as was indicated by its foul odor and greatly altered appearance; and microscopic examination showed that it abounded with bacteria. But near the wall of the vein it looked to the naked eye like a recent clot; I could not detect in it any putrid odor nor could I discover bacteria with the microscope.

Stained sections of these outer parts of the coagulum, made after hardening in alcohol, showed great multitudes of cells differing from one another in size and other characters just as is often the case with Metchnikoff's phagocytes. I supposed that these cells must have been in some way or other the anti-bacteric agents; but how, I could not imagine. The phagocyte theory clears up the mystery.

By means of this same theory we can account for what would otherwise have seemed to me incomprehensible,—the use, without evil consequences, of silk ligatures which have not been subjected to any antiseptic preparation. We learn from the experiments of Ziegler and others that leucocytes soon penetrate very thin spaces between plates of glass or other chemically inert foreign bodies inserted among the tissues. And we can understand that they may creep into the intervals between the fibres of a silk thread and destroy any microbes that may have lodged there, before they have had time to develop serious septic mischief. But there must surely be a limit to the thickness of the threads. No one, I imagine, would feel justified in leaving in the peritoneal cavity an unsterilized

cord as thick as a finger. Mr. Bantock, whose remarkable series of successful ovariectomies may seem to justify his practice, does not, I believe, prepare his ligatures antiseptically; and I understand that he uses, for tying the pedicle of the tumor, silk twist of so strong a nature that it can be trusted to bear the needful strain with a diameter of only about $\frac{1}{30}$ inch. But it would surely be wiser to sterilize even so slender a cord. Who can say that septic mischief may not occasionally lurk in the ligature in a form which may baffle the phagocytes?

The success in abdominal surgery, achieved by Bantock and Lawson Tait, without, as it is said, the use of antiseptic means, proves a stumbling block to some minds. But in truth the practice of these surgeons is by no means conducted without antiseptic precautions; nor would they, I am persuaded, desire that such an impression should prevail. Both are scrupulously careful in the purification of their sponges; and if there is one thing more important than another in the antiseptic management of wounds of the peritoneum, it is the avoidance of impure sponges. Both observe the strictest cleanliness, which is surely an antiseptic precaution; for it owes its virtue to the fact that it presents the septic organisms in the smallest possible numbers and thus reduces their power for evil to the utmost that can be done by any measures that are not germicidal. Both these surgeons also wash out the peritoneum with water, so as to get rid of coagula without injuring the peritoneal surface by rubbing it with sponges; and this is done in order to avoid the risk of sepsis in residual clots. The drainage of the peritoneum is another antiseptic measure, and Mr. Bantock, I am informed, has the sponges which absorb the serum, wrung out of sulphurous acid and changes them very frequently.

This is a department of surgery in which I have had but little personal experience. But I can see that while the measures to which I have referred are, so far as they go, highly valuable, it must be in itself a very desirable thing to avoid the direct application to the peritoneum of strong and irritating antiseptic solutions. But now that we are all agreed that microbes are the evil with which we have to contend, it is surely wiser to ensure by germicidal means their entire absence from our hands and instruments, rather than trust to the most perfect cleanliness in the ordinary sense of the term. And if water is used for washing out the peritoneum, prudence seems to me to dictate that it ought to be freed from living organisms if this can be done without making it irritating. This object is, I believe, aimed at by Mr. Bantock by boiling the water before using it; but I would advise as more effectual an extremely weak solution of corrosive sublimate, such as one in ten thousand, which, as Koch has taught us, may be implicitly trusted as aseptic, while it is not appreciably irritating and involves no risk of mercurial poisoning.

In general surgery the direct application of strong antiseptic solutions

is not attended with the same disadvantages as in operations in the peritoneal cavity. My practice for some time past has been to wash the wound, after securing the bleeding points, with a pretty strong solution of corrosive sublimate (1 to 500) and irrigate with a weaker solution (1 to 4,000) during the stitching; and I have had no reason to complain of the results. To this, however, I must make one marked exception. When applied to the healthy synovial membrane of a joint, the 1 to 500 sublimate lotion produces inconvenient irritation; and therefore when opening an articulation, as for suturing a transverse fracture of the patella, I abstain from the washing, and as a substitute, have hitherto irrigated during the whole operation with the weak solution (1 to 4,000).

And yet I must confess that I have for a long time doubted whether either the washing or the irrigation is really necessary. These doubts have been raised partly by experiments, some of which I mentioned at the London Congress, which had proved to me that normal blood and serum, and even pus, were by no means favorable soils for the growth of microbes in the form in which they are present in the air; and partly by reflection upon the experience we had when we used the carbolic spray.

As regards the spray, I feel ashamed that I should have ever recommended it for the purpose of destroying the microbes of the air. If we watch the formation of the spray and observe how its narrow initial cone expands as it advances, with fresh portions of air continually drawn into its vortex, we see that many of the microbes in it, having only just come under its influence, cannot possibly have been deprived of their vitality. Yet there was a time when I assumed that such was the case; and trusting the spray implicitly as an atmosphere free from living organisms, omitted various precautions which I had before supposed to be essential. Thus in opening the pleura in empyema for the purpose of evacuating the pus and introducing a drainage tube, and afterwards in changing the dressings, I had previously applied over the opening a piece of cloth steeped in an antiseptic lotion to act as a valve and prevent the entrance of air during inspiration. But under the spray I omitted the valve and allowed the air to pass freely in and out of the pleural cavity, although I used the spray at such a distance from the producing apparatus that it was dry and transparent, with the particles of carbolic solution necessarily widely separated from each other. And these particles cannot have been in more than instantaneous contact with much of the dust before it was drawn within the chest and securely protected by the pus or serum there from any further action of the antiseptic. It is physically impossible that the microbes in such dust can have been in any way whatever affected by their momentary presence in the spray.

Yet we did not find our results in the treatment of empyema rendered worse by this false confidence in the spray. There are few more beautiful

things in antiseptic surgery, as contrasted with the results of former practice, than to see the abundant purulent contents of the pleural cavity give place at once to a serous effusion rapidly diminishing from day to day, till, the opening being allowed to close, the pleura, restored to its healthy condition, resumes its normal function of absorbing gases and, as the natural vacuum within it becomes re-established, the atmospheric pressure blows up the contracted lung and brings it again into contact with the chest wall unimpaired in its dimensions. Such a course we had witnessed before the days of the spray and such we continued to see during its use.

If then no harm resulted from the admission day after day of abundant atmospheric organisms to mingle unaltered with the serum in the pleural cavity, it seems to follow logically that the floating particles in the air may be disregarded in our surgical work. And if so, we may dispense with antiseptic washing and irrigation; provided always that we can trust ourselves and our assistants to avoid the introduction into the wound of septic defilement from other than atmospheric sources.

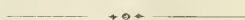
Since we abandoned the spray, three years ago, we have been careful to compensate for its absence, not only by antiseptic washing and irrigation, but by surrounding the seat of operation with wide spread towels wrung out of an antiseptic solution. For the spray, though useless for the object for which it was originally designed, had its value as a diffuse and perpetual irrigator, maintaining purity of the surgeon's hands and their vicinity as an unconscious care-taker. But if besides the spray we give up all washing and irrigation of the wound, our vigilance must be redoubled. Yet I believe that with assistants duly impressed with the importance of their duties, the task would prove by no means difficult. I have not yet ventured to make the experiment on any large scale, though I have long had it in contemplation. It is a serious thing to experiment upon the lives of our fellow men! But I believe the time has now arrived when it may be tried. And if it should succeed, then perhaps may be fulfilled my early dream. Judging from the analogy of subcutaneous injuries, I hoped that a wound made under antiseptic precautions might be forthwith closed completely, with the line of union perhaps sealed hermetically with some antiseptic varnish. And bitter was my disappointment at finding that the carbolic acid used as our antiseptic agent induced by its irritation such a copious effusion of bloody serum as to necessitate an opening for its exit. Hence came the drainage of wounds. But if we can discard the application of an antiseptic to the cut surfaces, using sponges wrung out of a liquid that is aseptic but unirritating, such as the 1 to 10,000 solution of corrosive sublimate, we may fairly hope that the original ideal may be more or less nearly attained.

We have already made of late considerable approaches towards it. Our wounds being no longer subjected to the constant irrigation of the spray, and carbolic acid having given place to the less irritating, though more efficient, solutions of corrosive sublimate, serous discharge is much less than formerly and less drainage is required. In many small wounds where we used to find drainage imperative, we omit it altogether, and in those of larger extent we have greatly reduced it. Thus after removing the mamma and clearing out the axilla, I now use one short tube of very moderate calibre where I used to employ four of various dimensions. But it would be a grand thing if we could dispense with drainage altogether; without applying the very firm elastic compression adopted by some surgeons, which, besides involving the risk of sloughing of parts of low vital power, with the chance that it may after all fail in its object, proves often extremely irksome to the patient.

It remains for me to say a few words regarding the best form of external dressing. Some surgeons have thought that simplicity and efficiency may be combined in the maximum degree by the use of cotton wool sterilized by heat. But though it may be a simple thing to heat the wool appropriately by means of suitable apparatus in a public institution, for the ordinary practitioner it would be impracticable. And as regards efficiency I need hardly remark that cotton wool merely aseptic can only exclude septic mischief when it is in the dry state. When it is soaked to its external surface with a copious discharge, it must be liable to become septic *en masse*. And however well we may succeed in the future in diminishing or abolishing discharge from wounds made by the surgeon, there must always remain cases in which it will occur in greater or less amount. Contused wounds, for example, into which dirty material of one kind or another has been introduced before they are seen by the surgeon, must be purified by the use of powerful antiseptic means and must for a while discharge freely. The same is to be said of cases in which we make the attempt, often with signal success, to restore an aseptic condition in a part affected with septic sinuses. Again there are abscesses in which, in the present state of our knowledge, we cannot avoid the occurrence of considerable serous oozing, and in which a perfectly trustworthy antiseptic dressing is a matter of life and death. And wherever discharge is considerable, it is essential that the dressing be of a kind which will not permit the development of septic organisms in it, although it be saturated throughout; and this can, I believe, only be attained by the use of chemical antiseptic substances. I have for some time past employed for this purpose a combination of the two Cyanides of Zinc and Mercury, which appears to fulfill the requisite conditions of antiseptic efficacy and due storage of the agent in spite of free discharge, together with absence of irritating properties. Having already published on this

subject, I will not detain the members of the Congress with details regarding it, further than to say that since the date of that publication Professor Dunstan, of the London Pharmaceutical Society, has devised means by which the substance can be prepared in a perfectly definite manner, and containing twice as great a percentage of the Cyanide of Mercury as that which we have hitherto used. And as I have ascertained that the Cyanide of Mercury is the more important ingredient antiseptically, and also that its larger amount in Dunstan's material does not make the salt irritating, we may fairly regard the new preparation as an improvement.

And yet we have had no need to complain of this substance in the form in which we have used it hitherto. Those who have followed my practice at King's College Hospital during the year and a half in which this dressing has been employed, will agree with me that we have secured a constancy of aseptic results which has more than ever justified the performance of operations once quite unwarrantable.



DEATHS FROM CHLOROFORM AND ETHER SINCE THE HYDERABAD COMMISSION, WITH CON- CLUSIONS DRAWN FROM THEM.

BY LAURENCE TURNBULL, M. D., PHILADELPHIA, PA.

Abstract of Paper read before the Section of Surgery and Anatomy, American Medical Association, Washington, May 7, 1891.

The history of the first and second commission, and the conclusions which they arrived at, are first considered.

The opposition to the first by the physiologists and practical administrators of anæsthetics, and the adding of Dr. Brunton to the second commission by the efforts of the editors of the *London Lancet*, are rehearsed.

The opposition to the conclusions arrived at by the second commission, more especially those of England and the United States, until the *London Lancet* advised a more careful study and record of deaths, are next detailed.

To perfect the record, Dr. Turnbull, assisted by several friends, has made a most careful collection of all the deaths, both from chloroform and ether, from every available source. These forty-three deaths have been arranged in a tabular form, giving the name, age, history, nature of operation, anæsthetic used, amount used, apparatus employed, posture, how long under influence, whether heart or respiration stopped

first, means to resuscitate, how long continued, post-mortem, cause of death, and reference.

He gives as the result of his examinations a brief analysis of the table, as follows :

The whole number of deaths from chloroform and ether are forty-three. Of this number, thirty-nine were deaths from chloroform and four from ether. In five cases, the cause of death was syncope from chloroform, and in thirteen cases the heart stopped first. In ten cases, the respiration stopped first, and in four cases the heart and respiration ceased at the same time. In one case cyanosis ; no pulse. In twelve of the cases it is not stated which stopped first.

The cause of death in case thirty-seven was due to some peculiar idiosyncrasy. In number twenty-two, paralysis of the pneumogastric nerve, the direct effect of the chloroform, superinduced by efforts at vomiting. After a careful consideration of the report of this case, and as there was cyanosis after vomiting, we suspected suffocation, but this cannot be confirmed, as there was no autopsy. In case twenty, there was given as cause of death, " Reflex paralysis of the heart," but there was no post-mortem to confirm this statement.

There were twenty-one post-mortems, most of them very imperfect. Nos. 24, 25, 36 and 37 were full and complete, and Nos. 15, 19, 21, 28 and 34, were fairly described in this particular. Many of the cases were very imperfect in their detail, especially those from New South Wales.

Sufficient cases are given to show the absolute importance in the method of administering chloroform, and to indicate the necessity of the most careful attention to the pulse and respiration.

The only death from anæsthetics, in Philadelphia, during the period stated, was one from chloroform (No. 36,) with not a single death from ether in the numerous hospitals and operations—indeed we may say in the thousands of operations.

The thirty-nine deaths from chloroform, added to the 375 collected by us from our work for Dr. H. C. Wood (contained in his address before the International Medical Congress, at Berlin,) make, up to the present time, 414 cases—the actual number being far greater through the cases never reported.

The exceedingly small number of deaths from ether, demonstrates its great safety ; still, it will and does kill ; (and we notice that the feeble, and persons suffering from malignant disease, are more apt to be its victims ; see Nos. 10, 11 and 18.) We would advise its use as an anæsthetic, and a full study and knowledge of the best mode of using it, which we judge is not the case in Europe.

In preparing the "Table of the Deaths from Chloroform and Ether, since the Second Hyderabad Commission," we have received the

assistance of Professor H. A. Hare, Dr. Joseph Leidy, Jr., and especially the kind labors of Dr. J. Melvin Lamb, of the Library of the Surgeon General's Office, U. S. A., at Washington. Every facility has also been afforded us by the lady librarian of the College of Physicians of Philadelphia, and to all of these we return our thanks.

ABOUT WOMAN—SHE SHOULD NOT BE A DOCTOR (OR DENTIST).

A woman physician, says Dr. George F. Shrady, in the *Ladies' Home Journal*, is handicapped in many ways simply because she is a woman. While we are ready to grant that intellectually she is man's equal, and possibly his superior, and that in gentleness of disposition, in force of sympathy and in delicate tact she may, in the long run, excel the old-time masculine doctor, we are conceding everything which the courtesy of the occasion will allow. In the majority of cases she is physically unable to endure the hardships and privations of medical practice. She is incapable, also, by her natural sympathies, sensitive disposition and feminine prejudices, of fitting herself easily and profitably to her work. Her instincts are not in accord with her surroundings and requirements. She is forced to cultivate the sterner qualities of her nature at the expense of her better womanly feelings—something always hard to do with one who may not be accustomed to the discipline of emergencies. There are now female physicians in all the large cities, who have not only won for themselves position and money, but have gained enviable reputations besides. But these exceptional few have succeeded, not because they were women, but in spite of their being women. In fact, it is hard to resist the conclusion, that even these few would not have done still better if they had only been men.—*Western Dental Journal*.

DENTISTRY IN FRANCE.

The French government has for some time been engaged in restricting the practice of medicine, and especially dentistry. The Chamber of Deputies has adopted the following clauses in the proposed law:

“The practice of the profession of dentistry is forbidden to everybody not possessing the diploma of doctor of medicine, officer of health, or of dentist granted by the French government after examinations conducted by a board of higher state medical education, and after a course of studies laid down by the higher Council of Public Instruction.

"The right of practicing the profession of dentistry is, by a temporary agreement, granted to every dentist, whatever his nationality, proving by the production of his certificate that he has been in practice one year before the passing of the present law. In no case in future will dentists have the right to administer local or general anæsthetics without the assistance of a doctor of medicine."

After debate the word "diploma," in the first paragraph, was changed to "license." In the first part of the second paragraph it was proposed to change the words "whatever his nationality" to "French nationality," but finally both phrases were omitted.

An alternative reading offered by the Government was finally adopted as follows:

"The right of practicing the profession of dentistry is, by a temporary agreement, granted to every dentist proving by the production of his certificate that he has been in practice one year before the passing of the present law. This concession does not give, in any case, to dentists in the position indicated in the preceding paragraph, the right of administering anæsthetics."

A SPECIMEN CASE.—At the May meeting of the New York Odontological Society, the subject discussed was "The Effect of Different Acids on the Teeth." After Dr. George W. Weld had read a paper on the injuries effected by vegetable and mineral acids upon the enamel of the teeth, Prof. A. H. Elliot, of the College of Pharmacy, related a peculiar experience he had a short time ago.

He said that a woman asked him to give her a certificate of the purity of some wonderful tooth powder she was selling, as she desired to advertise it. The professor told her to leave a bottle with him and he would test its contents.

In testing it, he found that it contained 18 per cent of hydrochloric acid. The professor was amazed, as the woman had represented the powder as perfectly harmless, saying that she used it twice a week herself, and was selling lots of it to bankers and brokers to take home to their wives. The professor refused to give the certificate and reported the matter to the proper authorities.

AMERICAN WINES.—We are now producing six times as much native wines as we export. The number of gallons of foreign wines imported last year was only 5,060,873, whereas the number of gallons of home production was over 30,000,000. The importations, moreover, are only 300,000 gallons more than in 1840, when we produced only 125,000 gallons of wine.

MICROSCOPICAL HUMBUGGERY.—We hope for the sake of the reputation of the New York City Board of Health, that a recent alleged interview with its President, as reported in the daily papers, was an imaginary one. A man was recently arrested in that city charged with a most atrocious murder of a woman, and particles of dried blood were removed from his hands and clothing, and submitted to a microscopical examination. According to the newspaper report, the gentleman above alluded to was made to say that the microscope showed that the blood on the hands of the man arrested for the crime was not only that of a female, but that it was identical in its special characteristics with that of the particular woman who was murdered. It is hardly necessary to say that there is not only no difference whatever between the blood of different individuals or sexes, but that it is an extremely difficult matter to distinguish between human blood and that of many other mammalian animals, especially after it has dried. This reported interview was a fine example of newspaper science, but no physician with even an elementary knowledge of the subject would have made such ridiculous statements, and it is most probable that the whole story originated in the brain of some enterprising reporter anxious to contribute his share to the sensation of the hour.—*Science News*.

PLATINUM.—The legitimate increase in the consumption of this metal, for electric purposes, has been greatly exaggerated. It was made the basis of an attempt by certain parties to monopolize the market by purchasing all the Government product in the Ural mines (platinum mining is a Russian Government monopoly). But large quantities of the metal came from Russia in an "indirect" (we would say "underground") way, and large amounts of old metal were dumped on the market, all of which brought the price considerably down again. Nevertheless, it will be some time before the platinum market will have resumed its normal tone.—*American Druggist*.

BROMOL.—This is the name recently given to the well known compound, tribromophenol, which is produced when phenol or carbolic acid is treated with an excess of bromine in aqueous solution. It has been found to possess strong antiseptic properties, and to be, at the same time, non-toxic. Rademaker has recommended it for external use, either dissolved in olive oil (1 in 30) or mixed with vaseline (4 in 30). It may also be applied in form of powder, like iodoform, for sprinkling on wounds.—*Chem. Centralbl., No. 21*.

THE GASTRIC JUICE.—Dr. Kianouski, in an article on the "Micro-bicide Action of the Gastric Juice," comes to the following conclusions: The empty stomach of a healthy man contains innumerable organisms. The gastric juice, and principally the hydrochloric acid, possesses micro-bicide properties. The microbes take no active part in digestion. Persons who, on account of some affection, secrete little hydrochloric acid, are easily intoxicated, by means of micro-organisms in the stomach. Therefore, the stomach should not remain in an empty condition for any length of time, and during an epidemic, food should be taken at frequent intervals, and, if possible, sterilized.

DENTISTRY AND DOLLARS.—The dentist who values his time and advice is the man who is appreciated.

He who sells himself for nothing, generally gets all he is worth.

He who goes for half-price, when patients are able to pay a reasonable fee, goes for more than he would bring on the market.

A community never values a dentist higher than he values himself.

He who works for love may gain the reputation of a Good Samaritan, but Good Samaritans are not all good dentists.

No greater mistake was ever made than to impress the community that dentists are poor business men. Straightforwardness, promptness, reliability and firmness are elements by which a man's qualifications are determined.—*Exchange*.

THE NORMAL MAN.—Prof. Huxley asserts that the proper weight of man is 154 pounds, made up as follows: Muscles and their appurtenances, 68 pounds; skeleton, 24 pounds; skin, 10½ pounds; fat, 28 pounds; brain, 3 pounds; thoracic viscera, 3½ pounds; abdominal viscera, 11 pounds; blood which would drain from the body, 7 pounds. The heart of such a man should beat 75 times a minute, and he should breathe 15 times a minute. In 24 hours he should vitiate 1,750 cubic feet of pure air to the extent of 1 per cent. A man, therefore, of the weight mentioned should have 800 cubic feet of well ventilated space. He would throw off, by the skin, 18 ounces of water, 300 grains of solid matter and 300 grains of carbonic acid every 24 hours, and his total loss, during that period, would be 6 pounds of water and a little more than 2 pounds of other matter.

NOT HIS PROFESSION.—"Your friend who has just left us seems quite a pessimist, Miss Jones."

Miss Jones: "Oh, no! Mr. Wabash is an oculist, and they do say one of the finest in the city."

AND YET HE RISKS IT.—The hardihood of sinful man is appalling. A contemporary tells of one in New York City, who claims to have pulled more teeth than any man living. He says that he has given gas for this purpose more than 150,000 times. He finds it difficult to remove more than fifteen or twenty teeth with one administration, but has extracted the whole set of thirty-two. After this monstrous confession, he naively remarks, "No man can stand by that chair and watch, day after day, the effects of anæsthesia on human minds and bodies, without learning there is a God."

Well, we should say that a man who has all his life been engaged in this kind of dental butchery, stands in imminent danger of finding out there is a God, if not here, certainly in the hereafter.

VACCINATION.—Surgeon Parke, who accompanied Stanley's Emin Pasha relief expedition, brings back with him an additional proof of the value of vaccination. Before the expedition started, the majority of the men were vaccinated by the doctor. In the wilds of Africa an epidemic of small-pox broke out, and only four of the vaccinated men were attacked by the disease, and none died, while the camp followers, who had not been vaccinated, took the disease in its most virulent form and died in great numbers.—*American Lancet*.

TO AVOID RUST.—Iron and steel goods of all descriptions are kept free from rust in the following manner: Dissolve one-half ounce of camphor in one pound of hog's lard; take off the scum and mix as much black lead as will give the mixture an iron color. Iron and steel goods, as well as machinery of all kinds, rubbed with a linen cloth and this mixture, will keep clean for months. If the machinery is for exportation it should be kept thickly coated with this during the voyage.

WOULD IT?—The Christian Scientists would have us believe that what we call pain is merely imaginary; but hang the imagination that keeps a fellow awake all night when he has the tooth-ache! And we don't believe it would do any more good to pull the imagination than the tooth.

NO MICROBES THERE.—It is said that not a single infectious disease is known in Greenland. It is too cold for the growth of the pathogenic fungi.

THE DENTAL ADVERTISER.

CONDUCTED BY THEO. G. LEWIS, D. D. S.

BUFFALO, N. Y., JULY, 1891.

DENTAL COLLEGES—HOW MANY OUGHT WE TO HAVE?

The assertion is frequently made that we already have too many dental colleges, and that what is really needed is a restricting of the number, with better support of those now in existence. No one can gainsay the last half of this expression, but we propose to examine the first part in the light of such knowledge as experience and observation furnish. It has also been declared that we have too many dental journals, and that what we need is condensation and concentration, rather than amplification. That is, that the diffusion of information should rather be restricted than extended. It has always seemed to us that this feeling was quite in harmony with that of Launcelot Gobbo, in "The Merchant of Venice," when he objected to the conversion of Jews. "Truly," said he, "we were Christians enow before; e'en as many as could well live by one another. This making of Christians will raise the price of hogs; if we grow all to be pork-eaters, we shall not shortly have a rasher on the coals for money." The objection to the multiplication of colleges seems mainly to be inspired by those who are, in some way, interested in schools already established.

There is no danger that increasing the number of colleges, within reasonable bounds, will result in crippling those we now have. More schools means more students. The invention of the spinning-jenny did not result in the anticipated ruin and further impoverishment of the working classes, for it brought about a wonderfully increased demand. Lowering the rate of postage eventuated in an increased revenue, through the consequent augmented correspondence. Our colleges are much better supported now than they were when they were less in number. With the addition of every school has come more students for the old colleges. A better supply brings about a greater demand, and this must continue to be the case until a limit to the available material is reached. Who will claim that in dentistry that limit has yet been found? Who will say that all those who should attend dental colleges are

now matriculated? The practitioners must continue to increase in number for some time yet, provided always that the schools are able to render the service which is demanded, and which it is within the power of the profession to give.

Twenty years ago the Philadelphia Dental College had 73 matriculates; this year it had 315. The Pennsylvania College, in 1871, had 74 matriculates; in 1891 it had 251. The Baltimore College at the same commencement reported 26 graduates (matriculates not reported); last year it had 76. The Ohio College that year graduated 9 students; at the late commencement it sent forth 75. In 1882, the New York Dental College had 33 matriculates; last year it reported 282. The Chicago College, with its 323 matriculates of last year—the largest number yet reported by a college—is but nine years old. The University of Maryland, with 163 matriculates is the same age. Vanderbilt, with 135 students, is but twelve years old, and Kansas City, with 170, is but nine. The University of Iowa at last commencement reported 161 matriculates, and that was but its ninth session. It may readily be seen, therefore, that the old colleges have not been the sufferers through the founding of new schools, but have steadily increased in prosperity.

Neither can we agree with those who scent danger to the dental profession in the founding of new schools and the addition of opportunities for study. The primal object of educational institutions is not pecuniary profit. The greatest good to be accomplished by schools is the proper equipment of students for performance of the duties of life, and not the opportunities for money-making on the part of the teachers. Certainly, these should be properly remunerated for their labors, just as every practitioner should be in the receipt of a sufficient income—if he can get it. But this compensation for services rendered will in both cases depend upon the law of demand and supply, and upon the quality of the service itself. It is true that settled practitioners are apt to protest against the intrusion of another into their field, by urging that there are already enough to supply the demand; but when was this ever accepted as sufficient ethical reason for debarment?

We are not in sympathy with those who believe that it is essential to success in professional teaching that the teacher be able to devote his whole time to it. On the contrary, we think that the professor in a dental school should remain in practice, and devote at least a part of his time to the practical application of that which he teaches. How otherwise are his sympathies to remain active, and his identity with the profession to be intimately maintained? If he devote himself exclusively to pedagogy, he soon becomes isolated in feeling, and a part of another profession that is distinct from that of dentistry. He is no longer a dentist, but a pedagogue.

In the giving of professional information, it is essential that the teacher should have constant opportunities for the actual application of his themes. His teaching must not be all hypothesis. He must be able to impart practical information, and be familiar with something besides books. He must be in the every-day use of the instruments required in the many operations, else how shall he properly teach their manipulation? Can a man thoroughly instruct in the art of surgery when he knows not the proper use of a scalpel?

Then, too, the methods of practice are constantly changing, and there are every-day improvements in instruments. How shall a teacher keep pace with the rapid march of events in dentistry, if he be not engaged in daily practice?

It is impracticable, then, for the teacher wholly to withdraw from practice and remain a competent teacher. Yet this would be the result if men were enabled wholly to devote their time to teaching, or if positions in our schools were so amply remunerated that they would suffice for the ambition of active men.

There is another view to be taken of this matter, and it is from this standpoint: The best work in any of the professions is done by those who are the hardest workers. A life of comparative ease and leisure may tend toward a deeper metaphysical contemplation, but it withdraws the man from that active sympathy which is necessary to success in a benevolent profession. It is experience, and that knowledge which only comes from extended practical application, that makes one skillful in a profession like that of ours. The physician with plenty of leisure may become a well-read man, and secure familiarity with the theory of medicine, but he will never be practically expert in the combating of disease. He who comes fresh from the bedside of the suffering patient is the one who, other things being equal, can best impart information to the student. He is the better teacher because he must from necessity work hard in actual practice.

We do not believe, then, in the building up of a separate class of teachers, who shall be relieved from the necessity for daily practice, who would be a clique by themselves and out of active sympathy with the great body of the profession to which they would be tutors. Thus far in our history, all our successful professors have been successful practitioners also. Usually their remuneration by the schools has not been sufficient for their daily needs, and well for them and for their classes it is that this has been the case.

Ever since the days of Harris, dentistry has been, year by year, taking yet higher and higher ground. The standard has been steadily advanced. Those who were graduates of our schools twenty, or five-and-twenty years ago, know how the curriculum has been extended. A generation

since, a diploma was possessed by comparatively few, and the range of study was narrow. To-day, nearly all the States have secured professional legislation, and the term of study has been necessarily lengthened to give time to compass the wider range of subjects comprised, and to enable the student to comprehend the results of the deeper research attained. In most of the States, it is forbidden to enter upon practice without the possession of a well-earned diploma, and examining boards have been appointed to see that the degrees conferred represent actual knowledge, and are not a mere form.

All this has been secured by the labor and earnest efforts of the older practitioners. In the days when we were neophytes, much less was demanded of us than we now ask of those who are entering upon practice. Does not this place upon us the responsibility of offering added facilities for study? Can we with propriety require higher qualifications and a greater percentage of graduates without increasing the opportunities? Our best schools are already running over with students, and have more matriculates than can well be accommodated, for there is a limit to the number that can be properly instructed by any single faculty, no matter how able or well equipped. Perhaps a teacher can lecture to a thousand as well as to a hundred, but he cannot give to each that personal attention that is requisite for faithful instruction. There is no school, that has been sufficiently long established and which is well equipped and has a competent teaching faculty, that has not about as many students as it can profitably accommodate. If any are languishing for want of support, we think that the reason may be found within themselves, unless indeed it be that they are too young to have established a reputation.

The number of dental schools does not bear the same relation to those of medicine that the number of practitioners does. Medicine has, in round numbers, nearly 100,000 practitioners in the United States. Dentistry has probably nearly 20,000. The number of medical schools, according to Polk's Medical and Surgical Directory, is about 225. As the list includes some that are extinct, and perhaps omits some, this may be considered a fair approximation, although the names of more than these are given. Dentistry has about 30 colleges in actual operation. This gives to medicine, in round numbers, one college to every 450 practitioners, and to dentistry one for every 650. And yet the demand for schools is proportionately as great in dentistry as in medicine.

Let us consider this matter of statistics from another standpoint. In all the professions it is calculated that ten per cent. of the whole number is annually lost through death and retirement. In medicine, this means an annual loss of 10,000 of those who have entered upon practice. To

make good this falling off, there are 225 schools, which gives to each one a graduating class of about 45 every year. The same rule applied to dentistry gives an annual graduating class of nearly 70.

And yet the demands of dentistry exceed those of medicine, because the people are constantly paying more and more attention to their teeth, and the calls for dental services are increasing relatively faster than for those of medicine. The scope of dental practice is also being constantly enlarged. The dentist is called upon to treat a wider range of diseases year by year. It is but a short time since his duties were mostly confined to extracting teeth and the insertion of artificial dentures, with the filling of a very simple class of cavities of decay. At the present time, unless he is competent to minister to nearly all the diseases of the oral cavity, affections which formerly fell within the province of the general practitioner, he is considered unworthy the name.

The conclusion to which, then, we must inevitably come, is this: Instead of too many schools, we have not enough. Instead of closing the avenues of professional information, we should open more. We cannot have too many sources of instruction, provided always they are properly equipped and the teaching is sufficient. Nor would the restricting of the number of colleges necessarily increase the efficiency of those which would be left. On the contrary, it would foster a kind of professional prigism, and tend to an exclusiveness which would not be for the good of dentistry.

There is one argument advanced by those who deprecate the opening of new schools that is worthy careful consideration. It is the danger which it is believed would arise from the increased competition for students. It is charged that if there were more colleges there would be a greater strife for matriculates, and that this would result in the graduation of those who are unqualified, and the lowering of the college standard. We cannot think that this would be the case.

In the first place, the experience of the past has not justified this fear. With the increase in the number of the schools, the standard has been constantly raised, and to-day there are healthy signs of a competition as to which shall be the most worthy the patronage of the student, rather than which shall graduate him within the shortest time and at the least expense. The past has taught us that the more schools, the higher the standard of graduation.

Then, too, as we have already said, the requirements for a successful practice are constantly being augmented. A few years since, the *eclat* of a diploma was what was wanted. With the advance in professional intelligence, people are learning that a degree is of no use unless it signifies something, and pupils are going to those institutions which promise best to equip them for the highest success in life. If one sends

forth its graduates to the battle of life but half armed for the fight, and as a consequence they fall by the wayside early in their career, it will soon be avoided. Men can no longer practice dentistry upon a mere name, and an increased competition among the schools means in these latter days a strife to see which shall present the best facilities for study, — which shall send its students out best qualified, and most likely to succeed in life.

An increased number of colleges means a closer watch upon each other, to see that each comes up to the requirements of the law. Increased competition means publicity to cases of improper graduation, and that in turn means death to the college thus lowering the standard, for the finger of scorn would be unerringly pointed at such an one, and the indignation of the profession would be aroused through the careful watch which would be kept.

In these days of boards of dental examiners, it would be impossible for a school to lower the standard through any surreptitious means, because so many of the graduates must pass beneath the careful scrutiny of the examining bodies that they would certainly be caught. Even now, attention is being directed toward certain of our schools by the fact that by far too large a percentage of their graduates fail to pass the scrutiny of the State boards, and students are beginning to ask themselves what a curriculum of study amounts to if it will not give them the knowledge demanded by an examining board. It is the schools which give the best instruction that are being selected by the students, and each year this is becoming more and more marked. If dentistry is true to itself, it holds within its own hands the power to regulate the granting of diplomas, and to maintain and even to advance the present standard.

Let no one misapprehend us. We are not advocating the establishment of schools by incompetent men, or at points which cannot afford proper clinical advantages. We are well aware that there is an intolerable itching on the part of some practitioners to attach to their names the title of "Professor," and this longing is usually on the part of men who are least qualified worthily to wear it. We know that under the lax laws of many of our States almost anyone can found a college, and that some of those thus established on paper do very little but afford "Chairs" to a cheap grade of "Professors," who certainly need some kind of a label if they are to be distinguished from the common herd. But this class of colleges cannot long maintain life in the face of an educated public opinion, and their existence does not militate against the necessity for a sufficient number of properly equipped schools at eligible locations.

In view of all these facts, we believe that the proper number of dental schools has not yet reached its maximum, and that the question may yet, for some time, be left to its own solution. When the number shall reach

the point at which it shows indications of lowering the standard of graduation, instead of advancing it, then, it seems to us, it will be time enough to commence the effort to restrict the means for education.

OUR DEAD.

The first half of the present year has brought an unusual mortality among old and well-known practitioners—the fathers of dentistry. A number of men have fallen whose deaths will leave great gaps in our midst, vacancies which it will be hard to fill. Some who have done very much to secure for dentistry the honorable position which it holds among the callings of men have passed away, and their voices will no more be heard at our annual convocations. We honored them while living, we revere their memories now that they are dead. There are yet left to us others of their day, whose fame is closely linked with that of the dead, men whose names will spontaneously rise to every lip, but whom we trust we shall have with us yet these many years.

WILLIAM H. ATKINSON, M. D., D. D. S.

Perhaps no man in the dental profession of America was more widely known than Dr. Atkinson, who died at his home in New York City, April 2d, 1891. He first saw the light in Newtown, Penn., in 1815, and was, therefore, in his seventy-seventh year at the time of his death. He was a born iconoclast, and throughout his whole life was a hater of creeds and intolerant of the dominion of dogmas, though sometimes himself somewhat dogmatic in his fierce denunciations of dogmatism.

He commenced active life as a preacher, but anyone who knew him could have predicted that no sectarian creed would long hold him in bondage. In his search for mental liberty, medicine commended itself to his conception, and he forsook preaching for practice, graduating at the Sterling Medical College, Ohio, in 1847. But medical pathies were as intolerable to him as sectarian creeds, and he soon turned his attention to the young and growing specialty of dentistry, graduating from the Ohio Dental College, in 1859. Henceforth his affections never wavered, and he was wont to declare that in dentistry alone could freedom from the dominion of the past be found.

He had married, in 1840, the daughter of his medical preceptor, and had been engaged in the practice of medicine in Norwalk, Ohio, but he now removed with his family to the city of Cleveland, and with all his wondrous enthusiasm prosecuted his new specialty. In 1861, he removed to the city of New York, where he remained to the end of his career.

It is difficult to present a correct estimate of one who presented so many phases of character, and who exhibited so much of ability in all, through a long and active life. No dentist of his day was more widely known, none more generally beloved, and no one made a broader impression upon his fellow practitioners than did Dr. Atkinson. Wherever he went—and there were few dental assemblies in which he was not an important factor—he was accorded the most earnest attention, and by the force of his eloquence swayed his audiences as he willed. He was ever antagonizing authorities, and waging relentless warfare upon precedents. He was wont to denounce his opponents in no uncertain terms, and yet they loved him in their hearts. He was not a learned man—not even a liberally educated man, but his reading was extensive, his memory retentive, and he was a close observer. His scientific errors were sometimes very pronounced, and yet he was accepted as an authority, in a certain sense, by all. He was ever upon the other side in almost all questions proposed, and yet he was personally the most popular of men. His reputation towered above that of most of his compeers, and yet his name is connected with nothing that promises perpetuity. He was a scholar who wrote no book, a student who made no original discoveries, a practitioner who introduced no novel methods, an author who formulated no striking new ideas, an originator who invented nothing, and yet his reputation transcended that of almost any of the scholars, students, practitioners, authors, and originators in dentistry. What was the secret of his success and popularity with the great body of dentists? The answer to that question may be found in the deep, sympathetic nature of the man. He loved his profession, and he loved his professional brethren. If at times he chided them, it was because his heart yearned toward them, and he earnestly wished to reclaim them from what he thought to be error.

Dr. Atkinson had no conception of the value of money, and his fees were regulated by the caprice of the moment, sometimes being ridiculously small, and at others absurdly extortionate. In business affairs he was a mere child, and his keenest regret in life was the necessity for any fees at all, or that there was any such thing as buying and selling. He would give all that he was and all that he had, and as freely would he receive from others. No man ever went to him for assistance and came unsatisfied away. He would dismiss his most profitable patient to demonstrate to some back-country practitioner a process in dentistry. His heart and his house were ever open to the needs of his brethren. The former was the more capacious and well provided, but to what the latter contained every professional pilgrim was welcome. It mattered not if his table afforded but one dish; that he would share in the spirit of true hospitality, as freely as though it were a Delmonico spread.

He was an enthusiast in whatever he undertook. Indeed, in the exuberance of his nature, and in his sanguine love, he sometimes believed too much, "for e'en his failings leaned to virtue's side." The ardent admiration with which he regarded his last therapeutical love was not exceeded by the buoyant enthusiasm with which, thirty years ago, he urged the merits of his favorites of that day.

Dentistry owes much to Dr. Atkinson, for he was ever in the vanguard, hallooing on toward the future. If at times he made a misstep, and found himself and the profession which followed him enveloped in mists and fog, no man was so quick and dextrous in extricating himself and them. Like the white plume of Navarre, Atkinson's voice and wondrous vocabulary might ever be recognized in the fore-front of the fight for progress.

His influence was powerful, magnetic, but it was a personal sway, and was born of the enthusiasm, the ardor, the zeal of the man, and of his burning love for his calling and his compeers. He led through his individual magnetism and his intense earnestness. It was not the weight of the principles which he advocated that gave him his power over his fellows, but the transparent zeal and affection which he manifested. His influence was wider, broader than that of men like Varney or Webb, who demonstrated to a waiting profession the perfection of professional skill, but it is doubtful if it was as deep, or will prove as lasting. But dying, he has left behind him a name so sweet that the fragrance will linger long after all his contemporaries shall have passed away.

EDWARD MAYNARD, A. M., M. D., D. D. S.

Perhaps the oldest, and certainly not the least respected of our recent dead, was Dr. Edward Maynard, who passed away May 4th, at the age of 79. Dr. Maynard had not, for some time, taken so active a part in professional matters as formerly, but his sympathy with all that was good in dentistry was never more active than during his closing years.

He was born at Madison, N. Y., in 1813, was educated at Hamilton College, afterwards entering the Military Academy at West Point, but resigning the same year because of ill health. He commenced the practice of dentistry in 1835, settling shortly afterward in Washington, where he continued in active life up to 1890. To him we are indebted for many valuable improvements in practice and in implements. It is claimed for him that he was the first to fill the pulp canals of teeth, using gold for that purpose as early as 1838. In 1845, he visited Europe, and demonstrated the method in St. Petersburg, where it was witnessed by Dr. Arndt, the physician of the Emperor Nicholas I., who recommended him to his Imperial Master, and Dr. Maynard was thereupon appointed

Russian court dentist. The Emperor presented him with some valuable souvenirs in recognition of his skill, and offered him a title, with the military rank of major, if he would agree to remain in Russia for ten years.

In 1857, Dr. Maynard was appointed Professor of Theory and Practice of Dentistry in the Baltimore College of Dental Surgery, and afterwards occupied the same chair in the National University of Washington.

Perhaps no dentist in America ever had such a distinguish clientele as had Dr. Maynard, for his patients included very many of the great men of the nation. His long and intimate connection with statesmen and scholars made him one of the most delightful of companions in social life, whenever it was possible to overcome his sensitive modesty and prevail upon him to talk of himself and his associations.

Nor was it alone in dentistry that he was known. He was one of the most ingenious of men. The Maynard rifle was the first really successful breech-loading gun devised, and it made his name famous among the military men of all countries, while the monarchs of several nations conferred upon him decorations of various kinds. Had it not been for his innate modesty and the retiring disposition which endeared him to those who best knew him, Dr. Maynard's name would have been even more widely known than it was.

JAMES W. WHITE, M. D., D. D. S.

At this present writing, the data for a fitting obituary of the well known editor of the *Dental Cosmos* and the president of the S. S. White Dental Manufacturing Company are not at hand. Dr. White was of the dental profession, though not in it. He graduated in both medicine and dentistry, but we are not aware that he ever devoted himself to the practice of either. He had always been in trade, yet in a branch which made his relations with dentistry a very intimate one, and his influence upon it was both broad and deep. As a writer he was keen, sharp and incisive, and at the same time concise and precise.

The first of his work which especially challenged the attention of the professional world was the "Dental Materia Medica," issued in 1867. There was so much of information contained in this unpretending little volume, the scope of the work was so admirable, and the style so perspicuous and clear, that it at once assumed a place in the permanent literature of dentistry.

In 1872, upon the retirement of Dr. J. H. McQuillen, he became the editor of the *Dental Cosmos*, a position which he retained until his death. The most of his professional writing since that date may be found in the volumes of that journal. It is not too much to say that he made of it one of the first professional journals of the world. He gathered to its support a corps of writers such as perhaps no dental

periodical could ever boast, and he carried its circulation to a point which no journal had before reached. He was always guarded and cautious in his editorial utterances, and seldom became entangled in any personal controversy.

When "The American System of Dentistry" was projected, Dr. White was selected as one of the contributors, and he prepared for it the chapter on "Diseases Incident to the First Dentition."

In 1880, upon the death of his brother, Dr. Samuel S. White, and the formation of the S. S. White Dental Manufacturing Co., he became the president of that company and remained such till the time of his death. He was a genial companion, an unassuming, quiet gentleman, but withal an earnest and zealous worker, whose interest in dental matters was ever active and pronounced. He died at his home in Philadelphia, May 27, 1891.

AMBLER TEES, A. M., D. D. S.

Dr. Tees was one of those who make an impression through their work. He was always a man of deeds, rather than of words. Born in Philadelphia, in 1836, he studied dentistry with the late Dr. J. G. Ambler, and commenced practice in New York City, in 1856, removing subsequently to Philadelphia, where, in 1866, he graduated at the Philadelphia Dental College. He became especially skillful in the prosthetic department, to which he chiefly devoted his attention. Especially in the manufacture of continuous gum dentures did he arrive at a rare pitch of perfection. He made long and exhaustive experiments in this process, and finally perfected a furnace for its baking which is known wherever men practice in the higher walks of mechanical dentistry.

In his personal relations, Dr. Tees was always very highly esteemed, and he had the good will and love of all with whom he was, in all the varied walks of life, associated.

Professionally, he was always faithful and painstaking, deserving and gaining the respect and confidence of his patients. His professional skill was of the very highest order, and many specimens of his handiwork have been the admiration and envy of his professional brethren.

THE NEW EDITOR.

The death of Dr. James W. White made vacant the editorial chair of the *Dental Cosmos*. It has been filled by the selection of Dr. Edward C. Kirk, of Philadelphia. It is doubtful if a better selection could have been made. Dr. Kirk is a vigorous and sententious writer, and the

papers which he has at different times contributed to the literature of dentistry would seem to indicate an acquaintance with general literature, a graceful and easy style, and good taste and judgment in the collocation of his matter. He has his spurs to win as an editor, but he certainly will bring to his task knowledge, culture, and a trained observation, with a facile and graceful pen. The place is one that is easy to occupy, but extremely difficult to fill. It demands an intimate acquaintance with the literature of dentistry, a thorough knowledge of the scientific questions involved in the advanced walks of the profession, an unerring judgment of the needs and tendencies of the times, and infinite patience and persistency in compassing the ends which such a journal should serve. He must be a teacher, a preacher, a leader, a saint, for he will at different times need the qualifications that should distinguish all these. His position will be one of honor, and power, and responsibility, but it will be laborious and vexatious. We know of no one who combines more of the varied qualities demanded than does Dr. Kirk, and we congratulate the *Cosmos* and the profession upon his selection, while we welcome him to the editorial ranks.

ACCEPTED A PROFESSORSHIP.

“W. C. Barrett, M. D., D. D. S., of Buffalo, N. Y., formerly editor of *The Independent Practitioner*, has accepted the professorship of Pathology and Morbid and Comparative Anatomy in the Chicago College of Dental Surgery. He will enter upon his duties at the fall term, which begins in September. Dr. Barrett is one of the most distinguished members of his profession in the east.”—*Chicago Daily News*.

THE DENTAL ADVERTISER desires to present its congratulations both to Dr. Barrett and the Chicago College. It is glad to learn that the new Professor will not remove from Buffalo, but will make periodical visits to Chicago for the purpose of delivering his lectures.

“NE SUTOR ULTRA CREPIDAM.”

Dr. Cravens, in a late number of the *Western Dental Journal*, makes an onslaught upon Dr. W. D. Miller and modern scientific investigation and study. He asserts that “medication in root canals is no more successfully practiced to-day than it was ten years ago.” Let us see: that was about the date when a certain practitioner recommended swabbing ’em out with a dry swab, and then filling, was it not? Dr. Cravens, not content

with scientifically demolishing Dr. Miller, attacks his literary attainments, and criticises the construction of his sentences, using such models of a pure style as the following: "Have we finally to prevent incipient decay by inducing everybody to go about with head-tanks of bi-chloride of mercury," etc. Well, this kind of baying at the moon won't hurt that luminary, though it is sometimes annoying to listeners who have no brick-bat at hand which they might throw.

A CREDITABLE NUMBER.

The Dental Review for June contains a very complete report of the late meeting of the Illinois State Dental Society—papers, discussions and all. This society is one of the most progressive in existence, and its papers are always valuable. The number contains 178 pages, of which 133 are taken up by the Illinois State Society report, and 16 by that of the Mississippi Valley Society, the oldest dental association in existence. These reports, with the other usual matter, make a very large and valuable number indeed, and one that is exceedingly creditable to the editors and publishers of *The Review*. Probably, however, the publishers of that journal are, as heretofore, also the publishers of the official report of the State Society, with the privilege of using the matter when in type for the journal.

We scarcely think that this is, as claimed, the largest number of any dental journal ever issued. Away back in the days of the first series of the *American Journal of Dental Science*, some of the numbers contained reprints of foreign works, and these made very voluminous issues.

STOMATOLOGICAL.

The Committee on Dental Science and Literature of the Illinois State Dental Society, in the report presented at the last annual meeting, through the chairman, Dr. J. D. Moody, says: .

"The formation of a society like that of The Stomatological Club, of Buffalo, N. Y., marks an era in our professional history. Its membership is not confined to dentists, yet its origin and permanent interest is due to them."

The Buffalo Stomatological Club is composed mainly of dentists who desire to study something besides the mere technics of dentistry. The by-laws forbid the consideration of any subject from a mere professional standpoint. It is a society of dentists who wish to learn more of the scientific aspect of the profession.

ANTISEPTIC SURGERY.

The address of Dr. Lister before the International Medical Congress of last summer, which will be found in this number, should be studied by all. Not that there is anything especially new in it, but because it is an admirable summing up of the conditions of antiseptic surgery, by one who gave his name to a method of procedure in practice. Prof. Lister acknowledges his previous mistakes, and reviews the advances which have been made since his earlier writings. He refers to the observations of Metchnikoff upon amoeboid cells, and cites other proofs of the ability of the healthy system to protect itself against the invasion of pathogenic, or non-pathogenic organisms.

Every dentist who extracts a tooth is, to that extent at least, engaged in the practice of surgery, and it is his bounden duty to keep abreast of the advance of thought in the methods for performing operations at the least risk of after complications, and hence he should carefully study the writings of men like Lister, Koch and Miller.

ALUMINUM CAST PLATES.

The Committee on Dental Art and Invention of the Illinois State Dental Society, of which Dr. W. B. Ames is chairman, report as follows concerning aluminum :

“Of the numerous materials and processes that are at present passing through the developmental stage, we will first refer to the aluminum alloy and method of casting introduced by Dr. C. C. Carroll, as this, in point of time, has been as extensively and as thoroughly tested as anything we have to comment upon. Of this we can say, unqualifiedly, that it has been a disappointment. It has been the experience of all with whom we have been able to confer, that this composition, in connection with vulcanite or celluloid, will, in the mouth, produce a salt, that forming between the attaching material and the plate severs the connection, rendering the piece worthless.”

DOGMATIC.

“The dentist who uses a band-matrix has not a scintilla of a chance of making a good filling by its use, and the inventors thereof have no appreciation of mechanics or the forms of tooth contours.”—*Dental Exchange*.

Well, here is dogmatism with a vengeance. A large proportion of the very best of the dentists of the world, some of our most eminent teachers,

and the finest among our operators, swept aside as incompetent by a single stroke of the pen of this Daniel-come-to-judgment, who in very questionable English damns them all unheard and untried. Go to; go to, young man! There will be cakes and ale even though you are virtuous. There is respectable work done by men who do not follow your methods.

AMERICAN SOCIETY OF MICROSCOPISTS.—This society will hold its fourteenth annual meeting in Washington, commencing August 10, and continuing in session five days. The membership of this society is about three hundred and fifty, and it includes the most prominent microscopists of the United States.

MAN SCIENTIFICALLY CLASSIFIED.—The following table gives the exact place of an American among animals. Until we come to the genus, he does not necessarily differ from other animals. His class characteristics are precisely those of others. He begins to be differentiated in the order, however, and thence forward he is entirely specialized.

Man.—Kingdom, animal; sub-kingdom, vertebrata; class, mammalia; order, bimana; genus, homo; species, sapiens; variety, Caucasian.

ARISTOL.—This drug, which has been urged for use in dental practice, is a patented preparation, and Schieffelin & Co., the proprietors, threaten proceedings against any one using anything bearing that name, unless it has their trade-mark.

A BAD BLUNDER.—A French physician was recently fined for using aconitine to stop the toothache, and which resulted in the death of the patient. Had it been a dentist who thus prescribed, he would have been liable to a charge of manslaughter, for dentists are not permitted to prescribe dangerous remedies, though there are few who would not have known more than did this physician.

THE AMERICAN MEDICAL.—At the late meeting of the American Medical Association, Dr. J. Taft was elected Chairman of the Section of Dental and Oral Surgery. Dr. E. S. Talbot was elected Secretary. The next meeting will be held in Detroit.

DENTISTS' SOCIETIES.

THE CALIFORNIA STATE DENTAL ASSOCIATION will hold its Annual Meeting in San Francisco, commencing the third Tuesday in July, continuing four days.

THE MINNESOTA STATE DENTAL ASSOCIATION will meet at St. Paul, July 8th, 9th and 10th.

THE WISCONSIN STATE DENTAL SOCIETY will meet at Eau Claire, July 21st, the meeting continuing until the 24th.

THE MASSACHUSETTS STATE DENTAL ASSOCIATION will meet in Boston, July 9th and 10th.

THE AMERICAN DENTAL ASSOCIATION meets at Saratoga, August 4th, 5th, 6th and 7th.

THE AMERICAN DENTAL SOCIETY OF EUROPE meets at the Schloss Hotel, Heidelberg, Germany, August 3d, 4th and 5th.

THE SOUTHERN DENTAL ASSOCIATION meets at Morehead City, North Carolina, August 11th, 12th, 13th and 14th.

THE NATIONAL ASSOCIATION OF DENTAL FACULTIES meets at Saratoga, August 1st, at ten o'clock A. M.

MEETING OF COMMITTEES ON DENTAL PATENTS.

There will be a meeting held, at the Town Hall, Saratoga, Monday evening, August 3, at eight o'clock, of all the committees appointed by the different dental societies all over the United States, for the purpose of organizing, and taking some action toward the prevention of further issuing of patents upon operations in the mouth. It is hoped that every society will see to it that they are represented at this meeting. Remember, it will be held the Monday evening preceding the meeting of the American Dental Association.

S. C. G. WATKINS, *Chairman,*

W. L. FISH, *Secretary,*

For New Jersey Committee.

AMERICAN DENTAL ASSOCIATION.

A resolution was adopted at the last meeting of the American Dental Association, authorizing the Executive Committee to communicate with members of dental societies and with the dental profession of the country, to the end that the membership of the various local and State societies may be increased, that the usefulness of the American Dental Association may be advanced, and the relations between it and the local societies be made more intimate. One object is to awaken a lively interest in the meetings of the American Dental Association, and to secure further representation from the various local societies at the annual general meetings. Will you be kind enough to show your pride in your local society by interesting yourself personally in this matter, and secure the appointment of delegates to the next meeting of the American Dental

Association, to be held at Saratoga Springs, N. Y., August 4, 1891? In addition to the appointment of delegates, we would suggest that your society appoint a committee who will forward to the chairman of each section such matters of interest as have transpired in your society during the year. The facts need only to be given to the chairman or secretary in such shape as to enable him to include them in the general report of each section. The names and addresses of the officers of the sections are herewith inclosed. If the societies of which you are a member have already met, will you send the paper you have read, or an abstract of it, or a brief outline of what you said in the course of discussion, or a short report of the entire meeting to some one of the chairmen or secretaries?

We desire a full attendance at the next meeting, as matters of great importance will come before it. Arrangements will be made to secure reduced railroad rates, but in order to get any reduction for return trip, it is *absolutely necessary to get a "Certificate Plan Receipt" for full fare paid* at time of starting, of the agent of whom ticket is purchased. The best hotel rates will be secured, and all who visit Saratoga will, we hope, be well repaid for the time and money spent in visiting that famous resort.

Yours truly,

J. N. CROUSE,

Chairman Executive Committee.

The Thirty-first Annual Session of the American Dental Association will be held at Saratoga Springs, N. Y., commencing Tuesday, August 4, at 10 o'clock A. M.

GEO. H. CUSHING,

Secretary.

SECTIONS.—1. Prosthetic Dentistry and Metallurgy. Chairman, T. S. Waters, Baltimore, Md.; Secretary, W. B. Ames, 70 State Street, Chicago.

2. Dental Education, Literature and Nomenclature. Chairman, C. R. E. Koch, 3011 Indiana Avenue, Chicago; Secretary, Louis Ottofy, 70 Dearborn Street, Chicago.

3. Operative Dentistry. Chairman, A. E. Baldwin, 828 West Adams Street, Chicago; Secretary, N. S. Hoff, Ann Arbor, Mich.

4. Histology and Microscopy. Chairman, W. X. Sudduth, Minneapolis, Minn.; Secretary, I. P. Wilson, Burlington, Iowa.

5. Materia Medica and Therapeutics. Chairman, A. W. Harlan; Secretary, James Truman, 3243 Chestnut Street, Philadelphia.

6. Physiology and Etiology. Chairman, H. A. Smith, 128 Garfield Place, Cincinnati; Secretary, W. S. How, Twelfth and Chestnut Streets, Philadelphia.

7. Anatomy, Pathology and Surgery. Chairman, T. W. Brophy, 96 State Street, Chicago; Secretary, M. L. Rhein, 104 East Fifty-eighth Street, New York.

ILLINOIS STATE DENTAL SOCIETY

At the Twenty-seventh Annual Meeting of the Illinois State Dental Society, held at Bloomington, May 12-15, 1891, the following officers were elected for the ensuing year: President, W. H. Taggart, Freeport; Vice-President, Garrett Newkirk, Chicago; Secretary, Louis Ottofy, Chicago; Treasurer, W. A. Stevens, Chicago; Librarian, F. H. McIntosh, Bloomington.

The next annual meeting will be held, beginning on the second Tuesday in May, 1892, at Springfield.

LOUIS OTTOFY,
Secretary.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

The eighth annual meeting of the National Association of Dental Faculties will be held at Saratoga Springs, N. Y., on Saturday, August 1, 1891, at 10 o'clock A. M.

Applications for membership must be in the hands of the executive committee, Dr. J. Taft, chairman, sixty days prior to the meeting.

Each delegate must be a member of the teaching faculty in the college he represents, and bring a certificate signed by the president (or dean) and secretary, stating that he is authorized to act for them.

Delegates must be in attendance promptly at 10 A. M. on the day of meeting, in order that all the business may be concluded before the meeting of the American Dental Association, August 4.

J. D. PATTERSON,
Keith & Perry Building, KANSAS CITY, Mo. *Secretary.*

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The National Association of Boards of Dental Examiners will hold its annual meeting at Saratoga Springs, N. Y., on Monday, August 3, 1891, at 10 A. M.

It is important that the Board of every State in the Union that has a law regulating the practice of dentistry be as fully represented as possible. This association has immense responsibility, and it ought to have the benefit of the wisest and most discreet counsel possible. It is hoped that every Board having membership in this body will be represented, and that those that have not yet become members will certainly do so at this meeting. Matters of great interest and importance will come before the meeting.

J. H. MARTINDALE,
Masonic Temple, MINNEAPOLIS, Minn. *Secretary.*

THE DENTAL ADVERTISER.

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ELECTRO-DENTAL SCIENCE.

BY S. B. PALMER, M. D. S., SYRACUSE, N. Y.

Read before the Eighth District Dental Society of the State of New York.

The subject here presented is a purely scientific one. An experience of thirty years convinces me that it is of value only to minds more or less scientifically educated to receive it. Animals do not live on mineral food; inorganic matter must become organic before it nourishes higher forms of life. All that is here presented will stand or fall by scientific investigation. For that purpose it is offered to your Society, because the members of the Eighth Dental District have opportunities for scientific investigation.

The early history of Dentistry is evidence that science was second to prejudice. The first dental periodical in this or any other country, had a noble title: "The American Journal of Dental Science." Its first editor, Dr. E. Parmly, was a prominent member of the "American Society of Dental Surgeons," and the most persistent in assaults upon members for using amalgam. Society Lynch Law was instituted, and offending members expelled without trial by Science. When Dr. Parmly was interrogated as to his practical knowledge of the material, his reply was: "I have neither used nor experimented with it in any way; I would not touch the nasty stuff." The profession was then young, and hardly through the "witch burning" period.

To imagine a picture: We see a freight train of dental supplies drawn by the locomotive Progress, with Practice as engineer, and Dental Science seated in the caboose. Recently the train pulled into the Grand Central

Station of the Sciences, and Dentistry was accorded equal rank with Medicine.

No one can study the Natural Sciences without being convinced of the solidarity of Nature. As the familiar phrase expresses it, "The laws of Nature are the thoughts of God."

Amid all that is changing there is one thing that is unbiased, unprejudiced by likes or dislikes, doubts or fears, and that is the law of Nature, which is truth as it came from the Creator.

The object of this paper is to arrange in concise form a summary of convictions and conclusions, the result of thirty years' investigation in search of laws which preside over and determine operations for the preservation of teeth by filling. At last, to the writer it seems that the labor has been rewarded, and all that remains necessary to add a new chapter to dental chemistry is the seal of scientific recognition.

We start with the hypothesis as taught by chemistry, that there are nearly seventy simple elements of matter; that the smallest particles are called atoms, which cannot be decomposed; that they combine and form innumerable compounds, the smallest division of which must contain two or more atoms, and we call this particle a molecule. Again, every atom or molecule of matter is acted upon by two very subtle, mobile, imponderable fluids or forces, permeating all ponderable matter, and capable either of setting the atoms of the latter in motion or of moving themselves in accordance with laws which it is the object of this communication to explain. These two forces, which are never independent of one another, but always co-existent and simultaneously developed in every case of electrical excitation, are usually determined positive and negative, to distinguish between them. They are manifest in several ways, as in static electricity, electricity from chemical action, in the polarity in connection with magnetism, in chemical action, fusion by heat, etc., etc. They are also allied with acids and alkalies, the former positive and the latter negative.

The saying, "Electricity is Life," comes the nearest to that unknown energy of anything we can conceive of; we may call it the spirit of matter. We read of the creation of man,—“Male and female created He them,” which is the God-given power to multiply. Had we a like history of the creation of energy, it might read: When God created the elements of which all things are made, He breathed upon them positive and negative electrified energy, and they became living matter. It is of this energy I wish to speak, and to speak so plainly and literally that all may comprehend, though they have never studied electrical science. It appears that effects are the results from contending forces; equalization is the outcome. Dental caries is an evidence of contending forces, as are acids acting upon alkalies, etc.

We boldly start with the knowledge that with Nature there is no caprice; there is law for every form and change of matter. It is embodied in the canon "that under the same circumstances and with the same substances the same effects always result from the same causes;" that is, so far as human observation can determine. The laws mentioned are distinctly defined through all changes of matter, whether inorganic or organic. We take our first lesson from mineral or inorganic compounds, as being most simple. We understand that solid substances are held together by a principle called cohesion. One of the essentials of cohesion is mobility of atoms or molecules. Fluids afford the general means for this action. Crystals, precious stones, vegetable and animal formations, are produced through the fluid menstrea. Moisture and semi-solids admit of cohesive combinations in proportion to their freedom of molecular movement. Fusion by heat under flux is the general method employed for metals. Glass is also a product from cohesion by fusion.

In all of these methods the peculiar principle of affinity plays an important part. It is an attraction of atoms or molecules caused by the energy belonging to matter, as already stated. To illustrate: metals under heat, while protected from oxygen by flux, unite to form a solid mass. We have a right to suppose that by the intense heat the atoms become electrified, are attracted and united by affinity and cohesion. As evidence of electrical attraction, we may notice the electro-plating bath. The fluid holds the atoms in solution, but owing to the distances of separation, without electrical excitation there is no concentration or deposition of the metal. By the passage of an electrical current each atom receives a higher electrical potential, and is attracted to the negative pole, where the band of cohesion binds them into a metallic mass.

By this process aluminum is extracted from clay, and by combination of potential and affinity mercury picks out gold from sand in placer mining, and lead, as flux, retains silver in the smelting furnace.

As we leave the mineral and come to the borders of the organic kingdom, the gateway is locked to all who have not the combination, which is Potentiality. How few understand its accepted sense. To me, no other word conveys so broad a meaning, or reveals so much of the mysteries of nature as this one short word. Not only in our field of labor, but everywhere, in all forms and conditions of matter, in every science connected with matter, potential is the energy at work. Potential in popular language is understood as power, or one who possesses great power,—a prince, sovereign, emperor, king, monarch.

Potential has recently been adopted by electricians to express an idea quite distinct from the meaning of any other term relating to electricity. As this comprises all that is necessary to be known of the laws pertaining to dental operations, a comprehensive definition will bring the matter intelligently before the profession.

To make a commercial application of potential: we understand that a person worth a million dollars has far more purchasing power than a poor man; we would say that a million dollars is of a higher potential power than zero, or poverty. Imagine this large fortune squandered; the potentials are equal; no commercial current, no credit. The world's progress is the result of effort to obtain a higher financial potential. Let us make a mechanical application: A reservoir for water is constructed at high elevation. Let us say that the water in the reservoir is of higher potential than the lake below, which may be taken as zero. By the intervention of a pipe line, wheels or engines, the difference of potential between the reservoir and the lake could be utilized for mechanical purposes; when the potentials become equal, the power ceases. If, however, by rains and springs the potential is maintained, the power continues. With this we are prepared to get a definition of Electrical Potential. This principle has formerly been expressed by "electromotive force;" but this does not fully meet all the requirements. The following is a definition from "Electricity and Magnetism," by Jenkins. "Difference of potentials is a difference of electrical conditions in virtue of which work is done by positive electricity in moving from the point at a higher potential to that of a lower potential, and it is measured by the amount of work done by the unit quantity of positive electricity when thus transferred." The above is a comprehensive, scientific definition, but it is above the understanding of the popular reader. As sea level is taken as zero in measure of altitudes, so is the earth regarded as *nil*, at the point where the potential of bodies is taken, above or below the potential of the earth. Let us consider two conditions of electric current, high and low, usually termed positive and negative. Electrical energy is derived by reason of the difference of potentials of currents in their passage from the higher to the lower. The earth is always ready to receive positive currents, and as ready to give negative electricity in exchange. That is, when bodies of usually high potential are reduced below the potential of the earth, shocks and currents are thrown out from the earth to meet this condition, and still maintain the principle that currents flow from a higher to a lower potential. Some writers make the distinction by calling it a high-low potential. Observations of my own, some of which are not found in books, afford popular illustrations of these currents.

Those who have been in the country on a bright, sunny day in September, may have noticed thistle-down floating upward as far as it could be seen. These were not borne upward by currents of air. Those who have seen pith balls vibrate between conductors of electric machines, or have seen the hair when charged with electricity stand up and try to escape from the head, may understand that thistle-down, a much lighter

substance, when so charged would rise into the upper air. This, too, accounts for the floating of spider webs in mid-air. The cause of this seeming disregard for gravitation is in obedience to this law, that bodies charged with like electricity repel, as the same pole of a magnet repels the needle and attracts the opposite pole. The surface of the earth and all bodies subject to electric excitation are charged with negative electricity. The clouds, and the region above the under side of the clouds, are positively charged, while the central portion of the air space is neutral—practically an insulator between the two potentials. Electricity passing through this space must be conveyed by some matter charged, repelled or attracted, or be forced through by high potential, as in the case of thunderbolts. Nature employs this energy in elevating the immense quantity of water which is evaporated upon the globe to form the clouds, and the same force condenses the vapor and returns it to the ground in rain and snow. Electricity is conveyed each way by this process.

When either the clouds above or portions of the earth surface below are at a high potential, an exchange or equalization takes place, as in thunderbolts from the clouds or the aurora from the earth. Another illustration of potential is found in the dynamo at the central station of electric power. The dynamo, which is driven by steam or water power, maintains the positive pole at a high potential above the earth, or the negative pole corresponding to the ground. The current thus obtained in its passage from the higher, when made to pass through motors, runs trains of cars, or when forced through air space from one carbon candle to another, lights the city.

To come down to currents of less intensity, we see the same laws in the working of the galvanic cell. By reason of chemical action upon zinc the negative element is held at a higher potential. Work is done on the line in conveying signals by telegraph, or the voice by telephone. Still lower, when chemicals are thrown together in fluids, where there is any change electricity is evolved, though the conditions are wanting to render the currents perceptible. A portion of the energy is spent in charging atoms and molecules with positive and negative electricity, and thus by attraction and repulsion they find their affinity. In case the compound is to be a solid, they are locked closely by cohesion.

We now carry this definition, with the continuity of the law of potential, up into organic life. Life depends upon life. It cannot develop out of anything that is not life. It is important to know the difference between a stone and a plant, though both may be composed of the same atoms. Both are subject to physical laws, the plant possessing all the stone has, and more—a mysterious something called life. This life did not lay in the stone, except in an undeveloped form. There is no trace of organic life in a stone, while the plant is permeated with a principle above all

the physical properties of plant or stone. As we rise from vegetable to animal life, we find still a higher state which we cannot explain.

Let us start with a seed : We are told that it contains a germ. Around the germ is stored food, or starch sufficient to sustain life until the shell or pod bursts, leaves unfold and rootlets enter the soil, and there is a young plant or tree.

The scientific question is, how is the food prepared from the soil. Vegetables do not live on mineral food. Dr. G. V. Black, in an article entitled "Agency of Micro-Organisms in Dental Caries," (American System of Dentistry, Vol. 1, page 756,) lays a foundation upon which to build a new theory of the energy of organic life. After giving the process of seed sprouting, as hinted above, we have the following :

" If the grains of corn are planted in a soil, the constituents of which have been chemically examined, it will be found that during the process of germination this soil has received acetic acid. This is in accordance with the laws of life, as we find them everywhere expressed, wherever they have been sufficiently examined, for in conjunction with all growth we find the formation of waste products. In this case the waste products are acetic acid, which is left in the soil, and carbon dioxide, that is given off to the air. * * * Suppose we have planted the seed in two inches of damp sand placed upon a piece of polished marble. Growth takes place and the roots strike down through the loose sand, and soon come in contact with the solid stone. They are unable to penetrate this, and instead they spread out upon its surface. After this growth has continued for a time, if the plant and sand be carefully removed from the polished stone, it will be found that wherever a rootlet has come in contact with it, it has left its trace in the form of a removal of the polish, and a close examination of this shows that a portion of the solid rock has been dissolved and removed, leaving the imprint of every rootlet. The roots have been doing the same towards the stone that the perigerm did towards the store of starch. They have been preparing the food for the nutrition of the growing plant, and the hardness, the apparent insolubility of the stone, has not been a sufficient barrier against them. * * * This is an illustration of the universal law that all living things, both plant and animal, must digest and prepare food material for assimilation. In the physiological sense it is not essentially different from the digestion which takes place in all the higher animals, including man."

The article then describes the difference between the digestive apparatus of animals and plants, and as a whole comes the nearest of anything I have found to announcing the source of energy which enables the growing plant to dissolve stone or minerals, and prepare the food suited to its demands. It has not been the province of science to teach what that something we call life, is. Through science we see the continuity

of law, or laws, which we study in the mineral kingdom, and follow them up through vegetable and animal life. Electricity is a something as mysterious as life. It is as far from our vision and comprehension as life. We need no proofs that it exists and is connected with matter everywhere. We have studied the laws which govern its action upon matter, and find it a power in certain conditions, but powerless under other circumstances. We come to know that these conditions are determined by potential, as already defined and explained. We know as well that electric currents decompose binary compounds, and that acids and alkalis are a product of electrolysis; we know that electric currents, through the agency of fluids, render atoms and molecules of matter attractive or repulsive to each other; that in all cases of electrical activity there are two coexistent currents, two poles, two potentials, and that work is done by the passage of the currents from the higher potential to the lower.

We now have in dentistry men of science, and their earnest, persistent labors have placed before us facts which scientifically settle many hitherto vexed questions. Professor Miller's conclusions have gained for him the admiration of all dental students. The following quotation from him, (*American System of Dentistry*, Vol. 1, page 812), will introduce a condition of the teeth, or rather a changing condition, for which no natural laws are given:

"A most powerful influence, which we do not well understand, is exerted by nutritive processes in the teeth themselves. I am assured by men who have grown old in the practice of dentistry, that mouths which have long been under their observation, and which practically have been completely free from caries for years, at once, on account of some sudden change of health, show a general breaking down or crumbling of the teeth *en masse* in the space of a few weeks. It has also been my experience that patients who have been dismissed by their dentists in America with the assurance that, according to previous experience, their dentures would require no treatment for one or two years, have come to me a few weeks later with teeth looking as though they had not been under the hands of a dentist for years. Some say the ocean voyage spoiled their teeth; others attribute it to the change in the climate, food, health, etc."

In the above we see a groping after something not defined. To the writer, that is no more a mystery than the molecular movements in the electro-plating bath. One law presides over both, only that relating to organic bodies is more complex.

Before entering upon this higher plane I wish to prove that the decay of teeth, decomposition of zinc phosphates and decomposition of particles of food at the cervical border of the gums, are greatly accelerated

by potential, and the process is in accordance with a well known natural law. We see a correspondence in scores of instances, but will mention only a few. A post set in the ground decays at the surface of the ground. A log lying on the ground decays upon the lower side. We are told that this is because of dampness. Dampness is one of the conditions necessary, but this fact is known from observation, while it fails to furnish scientific reasons. The post and the log, by reason of the capillary attraction, draw up moisture perhaps a few inches, or it may be one or two feet. The moisture above the ground is of a higher potential than the ground, or the wood below the surface. Decay occurs where the work is done, and that is where the positive current meets the negative. If we examine a tree we find it a conductor the whole length, and the foliage so constructed by nature that it takes in the positive current and conducts it to the roots, where the work is done by electrolysis—plant digestion—in dissolving and decomposing the minerals, thus affording plant food. Here comes in the natural conditions above quoted, that growing plants attacked marble, and sprouting seed gave acid to the soil. Plants must have alkali. Electrolysis furnishes the acid to set the alkali free. A rapidly growing vine by the side of a high wall becomes hungry for more alkali than the soil affords. Instinctively the little rootlets find a supply in the mortar, with consequent loss of the lime; the sand crumbles, the mortar is destroyed. The smallest seed or plant, even the micro-organism, comes under the same law, and alike produces the acid.

As we leave the earth's potential and follow the correspondence or continuity of law, we see it in all combinations of elements on a small scale. There is difference of potential in a battery, not only between the two elements, but between the air and the surface of the fluid, as the zinc shows more waste between high and low water marks. Long used vulcanizers show the workings of the same principle at the average water line.

The same law is demonstrated by the tin vessel with a copper bottom. The iron is corroded a little above the junction of the copper and tin. To illustrate in the mouth, the margin of the gums is the line where work is done. That is, the gums and sound teeth, when wet with saliva, are negative as compared with fluids and the debris of the mouth. If pack-thread were cut in lengths and placed between the teeth, extending from the crown to the gums, the outer end of the thread would be at a higher potential than the lower. Acid would be the product, without waiting for fermentation or the lodgment of food. Decomposition of saliva would be sufficient.

Of course this condition would be followed by all that has been described, because it would be a soil for micro-organisms and a means of decay. One theory is, that if there be no lodgment of food there will

be no fermentation and no decay. The other, that with no difference in potentials there will be no current, no decomposition and no decay. Both are scientific conclusions, but the lines have been run with different instruments; the one by the microscope, the other by the galvanometer needle. Each instrument reveals to us small causes.

Some idea of the minuteness of potential matter may be obtained when we come to know that molecules, even atoms, have their potentials, and their potentials may be changed by change of electric current. Magnetize a fine needle. It has its poles. Break it in pieces, no matter how small, or put it in a mortar and grind it ever so fine, and each piece will still be a magnet with its poles. If iron filings be brought within a magnetic field, each filing becomes a temporary magnet. Take two pieces of thin, bibulous paper. Wet one with saliva and the other with water and place them together, and they are at different potentials. This will help to explain why ligatures left around teeth mark their width in the enamel. We are now content with the idea that it is because of fermentation and micro-organisms. True, but not the whole truth. The entire surface of the ligature is exposed to the breath, and is of a higher potential than that next the enamel. As the root destroys the polish upon the marble, so does the product of electrolysis destroy the polish on the enamel.

If a post should be wound with a bandage of cloth and the winding be kept wet, the wood beneath would decay. Should the cloth, before winding, be sprinkled over with precipitated copper, the post would not decay. Not because the copper prevented the growth of organisms, but because the oxide of the metal penetrated the surface of the wood, and thus there was no difference of potential between the two surfaces. The action, if any, would be upon the outer surface of the cloth. This is precisely what amalgam does for porous dentine, and what gold does not do. If we ever hope to render gold efficient in frail teeth it must be done by insulation varnish.

Trusting that I have made it plain that the cervical border is a line of electrical activity as well as fermentation, we will follow this law up into the animal kingdom, and see no greater complications than are experienced in going from mineral to vegetable life. Our object now is to present a natural law which will reasonably and scientifically account for the conditions mentioned in the above quotation, viz.: the sudden breaking down of previously healthy teeth, in addition to the degeneracy of teeth during gestation, the absorption of the roots of deciduous teeth, and not less, to advance conclusions from the same law why teeth may be worn to the gums by abrasion without pulp exposure, while removal of dentine by acids or caries would expose the pulp without effort for self-protection. Years of patient study have been spent in experimenting to

obtain the scientific facts regarding dental caries. Years more would be required to answer the above questions by the same process. Not only has this study and training given us facts so highly valued, but they have prepared the mind to receive laws which connect one specialty with another, by which conclusions may be reached short of the tedious experimentations hitherto employed.

Let us take a lesson from an egg. Like a seed, it contains a living germ, with food material stored away to grow and sustain life until the germ has grown into a chicken sufficiently matured to burst its shell. In the sprouting of seeds, it may be seen that there is an excess of starch food laid in store, so that the roots partake of the nourishment from the soil in preference to that left in the kernel. Quite the reverse of this takes place in the egg. The whole stock of material becomes exhausted, and more lime is needed to supply the demand to grow bones and feathers. Here the principle noticed in vegetation comes in, not only to supply the demand for the new life, but to set that life free from its shell of bondage. The roots of the vine extracted lime from the mortar. In like manner lime is taken from the shell, which becomes thin and weak, and the little chick goes forth to pick and scratch for its living. Up to this time the external surface of the embryo chicken and the inner surface of the shell were of the same potentials. At the proper time, and most probably on account of the alkaline element having been exhausted, there was a difference of potentials as a result, and the positive acid would extract food elements from the shell, and thus render it frail.

We see the application in the absorption of the roots of deciduous teeth. The teeth are a portion of the body, built up and nourished from it by the pulp and periosteal membrane, the crown, or enameled portion, corresponding to the shell of the egg. Without speculating upon a point which I have not made a study, I will say that the crown of the permanent teeth, probably by pressure, cuts off the supply, or its equivalent changes the potential of the membrane. In other words, it reverses the current and absorption is the result. Bear in mind, this is what should occur under the law.

This introduces the subject of mechanical abrasion. In this slow process Nature is not disturbed in the work within the teeth. The potential of the fluids in the tubuli is not changed, but warning of approaching danger stimulates the organs to greater activity, secondary dentine is deposited and protects the pulp as it recedes. If the removal of dentine should come from acid action, or from caries, which amounts to the same, the vital potential is reversed. Nature does her work from within. She will not work against her own potentials, any more than you can electroplate articles attached to the positive pole of the battery. Cases are recorded where decay at the cervical margin of the gums has been arrested and

secondary dentine deposited to protect the pulp, as in the case of mechanical abrasion. I have found cases where cavities of decay have been filled with calculus. Both conditions are answered by the same law.

We are now brought to two extreme abnormal conditions of the system : one of high acid, and the other high alkali, or as compared with the earth's current, a "high-low" potential. Both conditions are constitutional, and both require constitutional treatment. In these conditions, as in the cases of climate, food, or ocean voyage, the positive elements are too high above the negative. The saliva is thin and decidedly of an acid nature. To meet this lack of lime, Nature extracts the most soluble portions from the teeth, and they break down. In the other extreme the secretions are thick ; tartar deposits are found upon the teeth, and occasionally in the urinal passages. Pyorrhœa, where these tartar deposits are found upon the roots of teeth beneath the gums, belongs to this high alkaline condition, and indicates an acid rather than an alkaline treatment. We are able to follow up the continuity of this law, from its effects upon the aggregation of matter too fine to be discovered by the microscope, up and through all compounds, through the vegetable and animal bodies, until we lose sight of its influence on the mind of man, as exemplified in the power of mind over body or bodies. The thought of a lemon causes extra flow of saliva. Intense mental activity attracts blood to the head. The leader of a mob in a high state of mental potential incites other minds to murder and crime. The potential eloquence of a preacher leads sinners to repentance.

As a matter of history, at the opening ceremonies of one of the Atlantic cables a message from America to the Queen was sent out from a battery composed of a gun cap, and the return message from the Queen's ring filled with sea water ; the point is that by the consumption of a grain or two of zinc, the potential of the tons of copper in the cable was changed for each signal or letter composing the message. Is it any harder to believe that a passenger, making the same journey in six or ten days, breathing sea air, should become physiologically changed, or that climate, food, health or mental conditions, should bring about the same results ?

It is impossible in one paper to go into the details of the many phases connected with this subject. Much labor and thought must be bestowed before it will be fully understood. Every step higher is attended with greater complexity, as illustrated by animal and vegetable life. Trees receive their higher potential from air and light. The energy is conducted through the sap to the roots where work is done in converting minerals into plant food. In correspondence with this, animals breathe the air into the lungs, where it acts upon the blood. Food of various potentials is taken into the stomach, which corresponds to a galvanic battery, and in the process of digestion and the passage onward potentials

become equal, and it is cast off or out of the body. The energy received from this chemical process is taken into the body, which acts as a storage battery, and may be expended in work through the muscles or brain.

A PLEA FOR CONSERVATISM.

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There are few men who possess minds so evenly balanced that they are enabled to view a subject from all the different standpoints, and, taking into consideration every factor that enters into the sum of the whole, deduce therefrom a fair and judicial estimate of the relative importance of each. One individual element assumes so close a relation to us that we see nothing else. A single angle presents itself to the vision, and gets so near as completely to shut out all view of other proportions, just as a finger's-end may be so close to the eye as to eclipse the whole world beside. This is especially true in all branches of medicine. There are such an infinite number of elements entering into the problem of pathological disturbances, each of which must in turn be taken up singly and carefully examined, that there is little wonder that every new agent presented should absorb attention for the time being, and monopolize a mind not sufficiently capacious to entertain more than one idea at a time. One single part of a great whole becomes so exaggerated by exclusive consideration that it engrosses the whole field, and everything else is lost to sight. Thus, one afflicted with some obscure, recondite disease, may apply in succession to all the medical specialists, and in turn be told that the source of his illness is in the lungs, the throat, the stomach, the nerves, the genitalia, the eyes, or the teeth. And the opinion will in each case be an honest one, for constant contemplation of one organ, or set of organs, has so exaggerated its importance that, remotely or immediately, they find it connected with every physical aberration.

When chemistry emerged from the dark ages of catalysis and spontaneous transmutation or change, and when was first observed what should have been known at the outset, that every chemical transition was the direct result of an active cause; when man obtained his initial glimpse into that wonderful microscopic world which so greatly transcends the macroscopic in extent and interest; when he began to comprehend the molecular disturbances wrought through the proliferation of the vegetable

fungi, and to get a little inkling of what was the true nature of those previously mysterious processes called fermentation and putrefaction, if he were the enthusiast that discoverers usually are, he imagined that the whole arcana of nature were now laid bare. Here was a new world of unknown vastness, and the influence of it upon the organic world of which its denizens were parasites was as yet unlimited by actual discovery; and imagination ran riot in the possibilities. These minute organisms might be the so long hidden cause of the unknown. Here might be found the key that would unlock the mysteries of nature. The cosmic egg was hatched. Microbes managed matter. Bacteria dominated disease, and pathology was but another name for a ferment. Corns and consumption were alike due to some specific micro-organism. The whole duty of man, professionally, was to get at the microbe and to destroy him, and then hermetically to seal up the tissues against further infection. Everything else was lost to sight by many of the so-called progressive physicians, and septicism and antiseptics alone ruled the hour.

In medicine the errors into which an unrestrained enthusiasm led such great men as Koch and Lister, and even Pasteur himself, have brought about something of a reaction, and it has been learned that every other study cannot be abandoned for the bacteriological laboratory, great and important as that department is. In dentistry we are slowly approaching the same point. It was with difficulty that the great and sublime truths of which Miller first gave us a clear conception secured fair consideration. I well remember, and so will some of you, when in 1884, only seven years ago, this Association met in this very place, and when upon this floor I attempted to urge some of his views, I, with my friend Daboll, was fairly hooted down. We were howled at, and the wicked did gnash their teeth at us. Every time I opened my mouth one prominent member stopped it by hoarsely bawling, "I call the gentleman to order." But truth has made its way, and now the trouble is that the pendulum has swung to the opposite extremity, and upon this same floor I feel myself compelled to enter a protest against what has assumed the proportions of a craze. The microbe haunts us, and infinitely small though it be, it is large enough to eclipse every other factor. We are now as obscure in the clouds as we were before in the caves. Climbing out of the cellar of ignorance, we have not stopped at the first floor of reason, but have rushed into the garret of fanaticism and zealotry.

Let me not be misapprehended. I am not underrating the importance of a thorough study of microscopical biology, nor would I for a moment depreciate the influence of microbes in oral pathological conditions. But I do deprecate the idea that there is nothing else to be considered, and that antiseptics and germicides are the only remedies which our pharmacopœias should contain. I protest against the assumption that because

Miller, as the result of his scientific investigations, proves that there is no special remedy that will insure an entire aseptic condition of the oral cavity, and that tooth-decay cannot be entirely prevented, that therefore all the splendid results of his years of investigation are barren and useless.

In a late journal a dentist insists that nothing has been gained in the last decade, because teeth still need to be filled, and alveolar abscess yet occasionally occurs. Look back, you gentlemen who have kept pace with the onward march of progress,—look back and see what was the condition of dental pathological knowledge in 1881. Have we no reason to feel encouraged? Are we not now to a greater extent the masters of disease? Does not the dentist who carefully and discriminatingly uses the knowledge of to-day, adding to it the nice manipulation upon which the practitioner of ten years ago depended,—does he not succeed the better for it?

The great trouble is that many men cannot imbibe a single draught of knowledge without becoming craniologically intoxicated. A single large idea overstimulates their intelligence, and they lose mental balance. There is something more than mere metrical jingle in the famous stanza from Pope,—

“A little learning is a dangerous thing ;
Drink deep, or taste not the Pierian spring ;
There shallow draughts intoxicate the brain,
And drinking largely sobers us again.”

Intelligent and enthusiastic dentists, who have the ear of their confreres, have discoursed learnedly upon microbes and ferments, upon germicides and detergents, upon coagulants and non-coagulants, while the younger men, who were perhaps taking their first sip of the fascinating draught, or at least with less of experience and knowledge, listened with open ears and wondering eyes. Nothing was said of other conditions than that of septicism, because the speaker took it for granted that all were as well informed as himself, and that they would add the modifying provisions. A single factor seemed to be raised to a dominating position, and remedies new even to the chemist were specifically recommended, without a fair comprehension of their properties. Is it any wonder that in following such teaching mortifying failures resulted?

How long is it since immediate root-filling was a kind of craze, the result of just such enthusiastic but injudicious teaching? A new idea was allowed to run away with judgment. Theoretically, all that was necessary was depuration and sterilization. Young men ran off from the meetings, like newly-hatched chicks with half the shell upon their backs, and essayed the new practice until sad experience taught them that there were other elements to be considered, and that the dental millennium had not yet arrived. Some of them have sat in sackcloth and ashes ever since, giving

dental societies a wide berth, and anathematizing those whom they believe to be false teachers, blind leaders of the blind, and all in the ditch together.

It seems to me time that we begin to consider the subject of antiseptic dental treatment from a more rational standpoint. Microbes cannot be utterly excluded from the mouth. They will penetrate cavities of decay despite the greatest precautions. Utter asepticism in any portion of the human economy is a dream that has no foundation in fact. At the International Medical Congress in London, in 1881, Sir Joseph Lister, who has given his name to a method of operative procedure, announced that the horrors of surgical interference were abolished, and that by means of the carbolic spray it was possible to operate under entirely aseptic conditions. But Ziegler, and Bantock, and Tait secured even greater success than did Lister, and they spurned his spray, being only sedulously careful as to cleanliness and irrigation. At the Congress held in Berlin last summer, we who had listened to Professor Lister with so much suppressed emotion only nine years before, were astounded to hear him now say, "As regards the spray, I feel ashamed that I should ever have recommended it for the purpose of destroying the microbes of the air."

The practice recommended by some of our most intelligent dentists in the treatment of root-canals, it seems to me, looks toward the entire exclusion of microbes. Everything is managed with this end in view. The utmost stress is laid upon the most minute particulars, while other needed precautions are neglected. In cases of alveolar abscess we hear of nothing save detergents and antiseptics. It seems to be taken for granted that if microbes can be exterminated, nothing else need be done. In the capping of exposed pulps asepticism is made the only condition of success.

I wish again to say that I am not urging indifference to antiseptic treatment. I believe it to be absolutely essential to successful practice. But I do not think that it is the sole factor, and the only thing to be looked after. I do not believe that the entire absence of all organisms can ever be assured. I do not hold it possible to secure complete aseptic conditions by any external means or agents. We cannot control the processes of nature; we can only influence them to a certain degree. We cannot, for instance, furnish the proximate principles of the body from without. We only can supply the proper pabulum, and from that allow the nutritive system to select and prepare its own material. The attempt to harden the bones or the teeth by giving phosphate of lime is a hopeless task, because it is not in accordance with physiological law, and it is quite as absurd to undertake the extermination from the tissues and organs of the body of all the micro-organisms, whether of a pathogenic or non-pathogenic nature. The oral cavity is never without microbes of various kinds.

The multiplication of remedies and the duplication and reduplication of methods will not compass the impossible. The more complicated the processes employed, the greater the opportunities for error. The absolute sterilization of dental instruments is impracticable. We may approximate it, but it is hopeless to attempt to destroy all spores without ruining the instrument. The germs of different fungi are too numerous and too widely diffused to be entirely eluded. Wherever air enters, there goes the possibility of infection, and air cannot be utterly excluded. Within the tissues, diffused throughout the blood, penetrating everywhere, the spores of the fungi are found, in health as well as in disease. There is no immunity from infection when an organ or a tissue shall have taken on a condition of atony. Man may fly to the uttermost parts of the earth, but there shall he meet with the destruction that wasteth at noonday. The microbe hath all lands for his own, and it is useless to attempt to escape his presence.

Does this absolve us from all attempts at asepticism? By no means. The very fact of the universality of the microbe should stimulate us to greater precautions. That instruments may not be made absolutely sterile, is no excuse for the almost universal and criminal neglect of proper precautions. How many operators keep a sterilizing apparatus and faithfully use it? It is of no material use merely to dip a point into some solution and then call it sterilized. How many have a special apparatus for the purpose? And yet no man should be permitted to practice without something of the kind. While we cannot utterly banish micro-organisms, we have no right to be inoculating with specific pathogenic bacteria. I have seen many cases in which a previously healthy mouth became diseased after the filling of a tooth by some careless or ignorant dentist. I have under treatment now a very bad case of localized stomatitis, the result of the lack of proper and decent care on the part of a dentist. A beautiful and refined young lady was undoubtedly inoculated from unsterilized instruments that had been used in an affected mouth. We never know how susceptible an apparently healthy patient may be to infection of some pathogenic organism. Even animals, not domesticated, may have such a condition of atony as to subject them to the action of microbes from which it is usually supposed that they have immunity. I have the skull of an old male gorilla which had a very bad alveolar abscess, the result of caries of the teeth, and I have another skull of a female gorilla that suffered from undoubted pyorrhœa. I also have a case of exaggerated antral abscess in a gorilla. You know that this animal has never yet been kept in a state of captivity.

In a condition of entire health nature has made provision for the destruction of invading bacteria. Whether the theories of Metchnikoff be true, and the peculiar power to digest and devour them rests in the

leucocytes of the blood, or whether microbicidic action may be found in some other function, we cannot now positively say. But we do know that until the tone of the system be in some way depressed, there is immunity from the usual pathogenic organism. That the spores of different ferments vary in virulence is of course a fact, but that does not affect the truth of the principle.

A tooth that has lost its pulp cannot be said to be in a normal condition. Yet in the healthy mouth, if proper precautions have been taken and if the right mechanical measures for its protection shall have been employed, we know that it is secure against the attack of disease under ordinary circumstances. We know that in many instances a pulp has been destroyed in the most slovenly way imaginable, without any regard even for decent cleanliness, a filling has been inserted over the devitalized pulp without even an attempt to remove the contents of the root-canal, and it has remained in an apparent good condition for years. We know that until within a comparatively short time the roots of teeth were filled without antiseptic precautions, because the condition was not then comprehended, and yet they were sometimes well saved. Westcott and Dwinelle, and their compeers, filled nerve canals before microbes and antiseptics were dreamed of, and they did it with success, too. Antiseptic treatment is not then always an essential. But Westcott and Dwinelle were not able to save as large a number of cases, nor were they with the incomplete comprehension of pathology which belonged to the fifth and sixth decades of the century, warranted in attempting the salvation of a class of teeth which, in the light of the further knowledge of this tenth decade, we do not hesitate to fill.

Thirty years ago there were very few who attempted the filling of root canals, for the men who were able to make delicate manipulation take the place of pathological knowledge were limited in number. Now almost every dentist who reads the journals attempts root treatment, depending upon following the methods laid down by those who pose as teachers. And it is just at this point that I desire to enter my protest against the half-teaching of the journals and societies when, affecting to discuss the whole of a given subject, only a single aspect of it is considered, and that is elevated into a matter of supreme, sole importance. I do not believe that it is sufficient that the cavity of decay should be deluged with detergents, saturated with germicides, and soaked with antiseptics. It is not enough that saliva should be excluded because of danger from infection. There are other reasons for it. The operation must be skillfully performed in yet another sense, and the manipulation must be perfect. The tissues about the tooth must not be injured by mangling blunders, any more than that they should be removed as far as possible from danger of septic infection. The filling should be judiciously chosen

and properly inserted. The appropriate remedies to insure the restoration of the tissues should be employed. No use of germicides can atone for the lack of these and other manipulative measures. While septic conditions should be carefully looked after, even greater stress should be placed on hygiene and restorative measures, remembering that it is only in a state of comparative health that there is any security for the permanence of the aseptic condition.

I care little for coagulants or non-coagulants. Coagulation is certain in albumen when exposed to external agencies, and all the non-coagulants in the world cannot prevent it, except by its practical destruction. I care not to exclude all organisms, for I know that to be impossible. There are many which are not pathogenic in their character. It is idle to talk of danger from anaërobic, deep-seated organisms, for they are usually harmless, and if they were not they cannot be avoided. I care not that every instrument that enters the pulp chamber shall have been heated to a red heat, which is the only way completely to secure sterilization. We know that the material with which the root is filled is never made sterile, and if the manipulation is what it should be there is no necessity for it. We know that utter asepticism of the mouth is a hopeless dream, even if it were desirable. But we also know that cleanliness and dryness are essential, and we know that these are within the reach of every careful operator. We know, too, that comparative freedom from pathogenic microbes is readily attainable, and the dentist who does not secure this is unworthy the name. We know that a state of asepticism is not the only one upon which health of the tissues depends, and it is quite as excusable to neglect one necessary precaution as another. A tooth may be as radically lost through imperfect manipulation or the use of bad material as by a lack of proper medication. So I again protest against the tone of some of our modern teaching, that seems to ignore all that is not new and unheard of by the average dentist, and that affects the obscure and the occult. I am willing to sacrifice my reputation for scholarship to that of good sense. I would rather have the approval of those who are really intelligent, than the applause of any number of groundlings. If I can be known as a safe, reliable, conservative, level-headed practitioner, I will resign all claims to daring, experimental, brilliant empiricism. I recognize the fact that it is necessary that there should be innovations and innovators, but I do not desire to be the patient of one. I honor those, who by patient, laborious investigation elucidate the incontestable truths of science, but I cannot give my approbation to him who catches up the half of an idea, and by an absurd extravagance manages to taint even the best cause. Therefore, while I eagerly seize upon new truths, I try to prove all things, and especially to hold fast to that which is good.

DISEASES OF THE HUMAN BODY WHICH HAVE BEEN TRACED TO THE ACTION OF MOUTH-BACTERIA.

BY W. D. MILLER, M. D., PH. D., BERLIN.

Extracts from a paper on "The Human Mouth as a Focus of Infection," published
in the September number of the *Dental Cosmos*.

1. *Decay of the Teeth.*

In conformity with the nearly unanimous verdict of all recent investigations, decay of the teeth must be set down as the most widespread of all parasitic diseases to which the human body is subject; and although, as far as the life of the patient is concerned, the prognosis is exceedingly good and decay of the teeth may be pronounced one of the most trivial disturbances in the human economy, yet, if we take into consideration the results which follow a case of general decay, particularly in the mouth of young or weak persons, it often becomes a disease of very grave nature.

I venture to say that most practitioners of dentistry will agree with me that the havoc wrought by dental caries in the mouths of vast numbers of children, or even adults, among the lower classes, is a much more serious thing than an attack of chicken-pox, rubeola, or even measles.

2-4. *Pulpitis, Gangrene of the Pulp, Pericementitis.*

Inflammation of the dental pulp, with the exception of the comparatively few cases where it is the result of trauma or of calcareous formations in the pulp-chamber, erosion, abrasion, etc., is due directly or indirectly to parasitic influences, while gangrene of the pulp can never have any other origin under any circumstances.

Pericementitis apicalis, the form of pericementitis which is most severe and gives rise to the most serious consequences, is likewise of parasitic origin, being produced by germs or their products, or by both together passing from the root-canal through the apical foramen.

5. *Alveolar Abscess.*

Alveolar abscess is an infectious disease, primarily of a local character, but frequently, or usually, accompanied by general symptoms of varying intensity, and sometimes attended by complications of a most serious nature. Severe cases of alveolar abscess, particularly in weak persons, not unfrequently present symptoms of an alarming nature. * * * I wish to call particular attention to the many cases in which it has terminated fatally through the supervention of septicæmia or pyæmia.

It must be constantly borne in mind that wherever micro-organisms are accumulated in large masses in any part of the body, the possibility of their being carried to other parts through the blood or lymph-channels, and of their producing, accordingly, metastatic abscesses wherever a point of diminished resistance exists, can never with certainty be excluded. * * * In like manner, general blood-poisoning (septicæmia), with speedily fatal termination, has been seen to result from accumulations of infectious material about the roots of a tooth.

6 and 7. *Otitis, Osteomyelitis.*

Every severe inflammation of the pericementum is naturally accompanied by more or less inflammation of the bone-marrow, or of the bone (osteitis), or of both together (osteomyelitis).

8 and 9. *Periostitis and Necrosis.*

A slight inflammation of the periosteum of the alveolar process and a slight necrosis of the bone necessarily accompany all abscesses in which the pus makes its way to the surface of the bone. * * * Not unfrequently, however, periosteal inflammations resulting from caries are of an exceedingly violent character, with intense, continuous pain, often lasting for days, enormous swelling, debility, fever, chills, sometimes terminating fatally. * * * Necrosis is but a more advanced stage of osteomyelitis and periostitis. The bone, deprived of all sources of nutrition, dies (becomes necrotic), and is afterward thrown off by the surrounding tissue in the form of a so-called sequestrum.

10. *Dental Fistulæ.*

In this connection I refer in particular to those fistulæ of dental origin which open on the neck, shoulder, arm, or breast, thus giving rise to so-called "running sores," which of course defy all treatment until the true source is discovered.

11. *Septicæmia.*

Many cases may be found in medical and dental literature in which a general infection of the blood causing the death of the patient in a few hours has resulted from the accumulation of pus about a diseased tooth, or from operations in the mouth.

12. *Pyæmia.*

Chronic pyæmia presents itself in form of abscesses of varying intensity occurring in different parts of the body, healing spontaneously at one point, only to break out again at some other more or less remote. An abscess at the point of the finger or on the toe may originate in a diseased tooth as well as an abscess at the point of the root.

13. *Meningitis, Encephalitis, Abscess of the Brain, etc.*

A superficial examination of the relations of the teeth to the cavity of the skull, will show us that an inflammatory process incited by the teeth of the upper jaw may reach the brain cavity either through the maxillary sinus, nasal cavity, and cribriform plate of the ethmoid bone (or directly through the nasal cavity and ethmoid), or through the pterygoid fossa and foramina at the base of the skull, or by way of the spheno-maxillary fossa, inferior sphenoidal fissure, orbit, etc. Inflammatory processes in the lower jaw ascending the ramus usually obtain entrance to the skull cavity by way of the orbit, less frequently, it seems, through the pterygoid fossa.

14. *Impeded Eruption of Wisdom-Teeth.*

The chronic state of irritation upon the gums and periosteum resulting from impacted wisdom-teeth, and the consequent state of diminished resistance, make it possible for micro-organisms, which obtain entrance between the crown of the tooth and the overlapping gums (assisted as they so frequently are by the irritating action of small particles of food undergoing fermentation), to multiply in large numbers and, penetrating along the course of the distal root into the depths of the jaw, to bring about the series of disturbances, ostitis, osteomyelitis, periostitis, phlegmon, trismus, and in some cases necrosis or even septicæmia.

15. *Pyorrhœa Alveolaris.*

There are many reasons for believing that pyorrhœa alveolaris has an origin similar to that of the suppurative processes associated with the impeded eruption of the lower wisdom-teeth. * * * The evil results of allowing this disease to gain the upper hand manifest themselves not only in the impairing or complete loss of the efficiency of the teeth as organs of mastication, but also, as has been expressed by Galippe, when a secretion of matter in the mouth becomes general, patients may suffer from fever, loss of appetite, stiffness, severe disturbances of the alimentary canal, insomnia, subictoritic discoloration of the skin, etc.

16. *Disturbances in the Alimentary Tract.*

The mouth, as has been sufficiently well established, furnishes one of the chief sources for the constant recruiting of the bacteria of the stomach and intestines. Not only this, but the constant swallowing of decomposing matter and of pus from an improperly cared for mouth may lead to the most serious disturbances, both acute and chronic.

17. *Diseases of the Lungs. — Croupous Pneumonia.*

The uniform results obtained by investigators on the subject of pneumonia for the last five years leave little room for doubt that the cause of

this important disease is to be sought for in a species or group of micro-organisms which are constantly present in the sputum of persons suffering from pneumonia, and very frequently even in the saliva of quite healthy people. * * * Furthermore, the micrococcus of pneumonia not only does not proliferate at the ordinary temperature of the air, but, what is of still greater importance, soon loses its virulence when cultivated out of the body even under the most favorable conditions, which is still another potent reason for the supposition that in pneumonia the mouth and not the air is the direct source of the infection.

18. *Infiltration of the Surrounding Tissue and Chronic Swelling of the Lymphatic Glands in the Region of the Lower Jaw and Neck.*

The causal relation of a diseased condition of the teeth to this affection has been clearly enough established by Odenthal, who found glandular swellings in ninety-nine per cent. of all children who suffered from badly decayed teeth, and only in forty-nine per cent. of those with sound teeth.

19. *The Infectious Anginae (Tonsillitis, Amygdalitis Infectiosa, etc.)*

It is now commonly recognized that the tonsils may harbor various pathogenic bacteria in their lacunæ without any appreciable evil consequences, until, through some cause or other, which may be of a very trivial nature, their action manifests itself either in form of a local or general infection. Particularly tonsils which are chronically inflamed, hypertrophied, are dangerous accumulators of pathogenic germs.

20. *Angina Ludovici.*

Sufficient evidence has been accumulated to render it highly probable that this severe, though rare affection, is the result of the invasion of micro-organisms through slight wounds, ulcerations, or other breaks in the continuity of the mucous membrane, or by way of diseased teeth, or of the tonsils, or of the ducts of the sublingual and submaxillary glands.

21. *Diseases of the Maxillary Sinus.*

These are of such frequent occurrence that every practitioner must have seen one or more cases. It is not necessary to refer to the fact that they are in the vast majority of cases the result of the action of mouth-bacteria.

22. *Pneumococcus Abscesses.*

It has been well established that the so-called pneumococcus possesses invasive properties of the highest order, so that there is hardly any part or organ of the human body which may not fall a prey to its action. * * * In such cases the coccus is transported from the mouth to other parts of the body through the blood or lymphatics, or as is often the case in otitis,

meningitis, etc., by a direct spreading of the affection from the mouth to the neighboring cavities.

23. *Disturbances resulting from the Absorption of Products of Putrefaction through the Mucous Membrane of the Mouth.*

In persons of uncleanly habits, who neglect the care of the mouth, and especially who allow rubber plates to remain in the oral cavity for weeks together, constantly covered with a thick coating of putrefying mucus and food, loss of appetite, nausea, vomiting, and chronic indigestion may result from the prolonged action of the products of decomposition upon the mucous membrane of the mouth and pharynx.

24. *Stomatitis Ulcerosa (S. Scorbutica, S. Mercurialis).*

These are nothing more nor less than the result of the invasion of pyogenic and saprophytic bacteria of the mouth upon a tissue which has already suffered a severe diminution in its powers of resistance through the general primary affection.

25. *Actinomycosis.*

This disease is of so frequent occurrence and its connection with the mouth so apparent, that it requires only to be mentioned to carry with it an argument for a more commensurate estimation of the importance of careful attention to the hygiene of the mouth.

26. *Noma.*

Although of comparatively rare occurrence, this disease excites particular interest on account of the fearful ravages which it produces and the rapidity with which it advances, so that in the space of three or four days the whole cheek, nose, eyelids, mucous membrane of the jaw and soft palate may be transformed into a necrosed, putrefying mass.

27. *Pharyngomycosis (Mycosis Tonsillaris Benigna).*

An infection caused by a proliferation of saprophytic bacteria in the lacunæ of the tonsils.

28. *Stomatomycosis.*

This is caused by the colonization of sarcina on the mucous membrane of the cheeks.

29. *Thrush.*

A well-known disease caused by the invasion of a yeast-fungus, *Saccharomyces albicans*. These are all troubles of undoubted parasitic nature.

33. *Inflammation and Suppuration.*

These affections of the salivary glands, in particular of the parotid, must also be mentioned as troubles which in many cases owe their origin to mouth-bacteria which find their way through the ducts to the body of the gland.

34. *Diphtheria.*

The fact that an attack of diphtheria may be provoked by slight wounds in the mouth, or by the presence of diseased teeth, and the fact that the extirpation of the tonsils has proved to be one of the most successful prophylactic measures against diphtheria, seem to point to the conclusion that the human mouth and throat harbor the diphtheritic bacilli under normal conditions until the proper moment arises for them to assert their specific action.

35. *Tuberculosis.*

Many cases are on record in which primary tuberculosis of the mouth has made its first appearance around diseased teeth or roots of teeth, or following extractions and other operations in the mouth.

36. *Syphilis.*

The question of syphilitic infection through dental operations (extraction, filling,) through unclean rubber-dam, instruments, drinking-glasses, through kisses, transplantation of teeth, bites, etc., has been so frequently discussed in dental periodicals, and must be so familiar, that a simple statistical inquiry into the question will suffice to show the importance of exceeding great care on the part of the dentist to prevent transmitting the disease to innocent patients.

37. *Infections following Operations in the Mouth.*

In recent years the demand for the adoption by dental surgeons of the same antiseptic measures observed by the general surgeon has constantly become more and more imperative. Attention has been repeatedly called to the fact that bloody operations in the mouth, such as tooth-extractions, performed, as too many of them are, without the slightest regard to the principle of asepsis, often lead to infections of serious nature, which might have been easily avoided; not only that, but carelessness in regard to cleansing the instruments after every operation frequently results in the communication of disease from one individual to another.

38. *Infections resulting from Wounds with Dental Instruments.*

Numerous cases have recently been brought to light in which slight wounds upon the hand inflicted by instruments used in operations upon

the teeth, also scratches of the fingers on sharp roots, have resulted in infections of a most serious nature.

Stomatitis Epidemica.—Foot and Mouth Disease in Man.

Under the above title, I wish to refer to an affection, which, as will be shown, in all probability has the same origin as the foot and mouth disease in cattle, but which being communicated directly from man to man, becomes more virulent than when communicated from cow to man, the relation presumably being the same as that between variola and varioloid.

The epidemic referred to occurred in one of the suburbs of Berlin, a district having a population of nine thousand persons, of which over six thousand have suffered from the disease in the last eighteen months.

[The paper is supplemented with a table, classifying one hundred and fifty cases of complications resulting from diseased teeth, or operations in the mouth. The cause, the diagnosis, the result—usually death—and the treatment in each case are recorded.]

ABSTRACTS OF PAPERS COMMUNICATED TO THE
SEVENTH INTERNATIONAL CONGRESS OF
HYGIENE AND DEMOGRAPHY.—
LONDON, AUGUST 10-17, 1891.

THE MOUTH AS A SOURCE OF INFECTION.

I. Local and general diseases which have been traced to the action of mouth bacteria:—1. Caries of the teeth. 2. Diseases of the dental pulp. 3. Diseases of the pericementum. 4. Alveolar abscess (cases with fatal termination). 5. Ostitis, osteomyelitis, periostitis, necrosis (frequency of cases terminating fatally). 6. Dental fistulæ. 7. Septicæmia of dental origin. 8. Pyæmia of dental origin. 9. Meningitis of dental origin. 10. Complications produced by impeded eruption of wisdom teeth. 11. Pyorrhœa alveolaris. 12. Disturbances of the alimentary tract. 13. Diseases of the lungs, (a) croupous pneumonia, (b) gangrene. 14. Chronic swelling of the lymphatic glands. 15. The infectious angina. 16. Angina Ludovici. 17. Diseases of the maxillary sinus. 18. Pneumococcus abscesses. 19. Disturbances through resorption of products of putrefaction from the mouth. 20. Stomatitis ulcerosa, scorbutica, etc. 21. Actinomycosis. 22. Noma. 23-29. Pharyngomycosis, stomatomycosis, thrush, stomacace, aphthae, herpes

labialis, parotitis. 30. Diptheritis. 31. Tuberculosis. 32. Syphilis. 33. Infections following operations in mouths. 34. Infections through wounds with dental instruments.

II. The pathogenic bacteria of the mouth, with special reference to the micrococci of sputum septicæmia (pneumococci), to micrococcus tetragenus, spirillum sputigenum, and certain pathogenic kinds here described for the first time:—Method of examining saliva for pathogenic bacteria. Original investigations. Results of inoculations with the saliva of 111 healthy persons. Death of the animal followed in 101 cases. Two groups of pathogenic bacteria in the mouth, one producing speedy death through septicæmia, the other producing extensive suppuration. Comparative frequency of different pathogenic bacteria of the mouth.

Various species of micrococci which produce sputum septicæmia:—Micrococcus of sputum septicæmia I. (pneumococcus). Micrococcus of sputum septicæmia II. Micrococcus of sputum septicæmia III. Micrococcus of sputum septicæmia IV. Micrococcus tetragenus. Bacillus buccalis muciferens. Bacillus of sputum septicæmia. Bacillus buccalis septicus. Bacillus pneumoniæ.

III. Prophylactic measures.

Methods of determining the action of antiseptic solutions upon the bacteria of the oral cavity (*a*) by incorporating the antiseptic with the secretions of the mouth and determining the time necessary for complete sterilization, (*b*) by determining approximatively the number of bacteria in the mouth before and after the use of the antiseptic, (*c*) by determining the action of the saliva upon animals, before and after rinsing the mouth with the antiseptic.

Results.

Lantern demonstration of photomicrographs of diverse pathogenic bacteria of the mouth, etc.—*Professor Dr. Miller, Berlin.*

DENTAL CARIES.

[Abstract of remarks accompanying lantern demonstration.]

Dental caries or decay is a process of disintegration commencing invariably at the surface of the tooth, and due entirely to external agents. Caries traceable to the same series of causes, remote and direct, and accompanied by similar tissue changes occurs in teeth and in blocks of ivory re-fixed in the mouth by artificial means. By subjecting extracted teeth to the action of the same agents under the same conditions as to temperature, moisture, and presence of micro-organisms as exists in the mouth, caries can be artificially produced which is indistinguishable from that occurring in living teeth.

The active agents in caries are acids and micro-organisms. The great bulk of acid is the product of fermentation of the organic matter commonly present in the mouth and lodged around the teeth. These acids are often assisted in their action by acid secretions. Fermentation being due to action of micro-organisms, bacteria must be considered a prime factor in causation of caries. Proliferation of organisms amidst the fibrils and in the organic basis of dentine is an essential feature of the disease.

The predisposing causes of caries are: (1) inherent defects in enamel which render the tissue at parts, or throughout, easily acted upon by acids; (2) crowding and irregularity of the teeth which give rise to retention of debris on their surfaces; (3) vitiation of the buccal secretions. The first and second of these causes govern the incidence of decay. The rapidity of progress of caries is mainly governed by the inherent qualities of the tissues. These vary extremely.

Lantern Exhibition of Photomicrographs.

1. Section of normal enamel. 2. Section of normal dentine. 3. Transverse section of normal dentine. 4. Section of tooth showing inherent defects in enamel and dentine. 5 and 6. Sections of enamel showing inherent flaws. 7. Section of dentine showing inherent structural defects. 8. Section of carious dentine at orifice of cavity of decay. 9. Deeper section of same tooth. 10. Section showing point of junction of carious and unaffected dentine. 11. Section of dentine in last stages of caries; tubes filled mainly with cocci. 12. A similar section, tubes filled with leptothrix. 13. Transverse section of carious dentine in advanced stage. 14. Scrapings from carious cavity showing various organisms. 15. Section of "pipe stem" dentine.

Prophylaxis of dental caries is to be accomplished by prevention of the predisposing causes. Production of faultless dental tissues can only be brought about by improvement of the race and of the *hereditary* qualities of the individual. Little or nothing can be done to influence the structure of the teeth in the individual after birth, or in the foetus through the mother. Crowding and irregularity of the teeth are due to smallness and malformation of the maxillæ, a characteristic of civilization. Vitiation of the secretions of the mouth is to be prevented by maintenance of a high standard of health and by local hygiene.

Sections will be exhibited under the microscope showing various phases of—(1.) Ordinary caries. (2.) Caries in teeth worn on a frame as artificial substitutes. (3.) Caries artificially produced in extracted teeth.
—Henry Sewill, M. R. C. S., L. D. S.

DENTAL REFORM IN THE NAVY.

The Naval Medical Department is concerned with the medical, surgical, and hygienic treatment of some 60,000 men, etc. The treatment, both surgical and hygienic, of the teeth should be included. The age of the sailor's service comprises that period of life in which dental disease most frequently requires treatment. The memorandum for the guidance of recruiting officers as to defective teeth, examined and criticised. The exclusion of those whose teeth are bad does not remove the necessity of dental treatment. Results of an examination of the teeth of 1,000 sailors. Extraction is the only treatment practiced, the sick berth steward being too frequently the operator. The departmental requirements as to equipment examined. The naval surgeon has, as a rule, no training in the treatment of the teeth. The recognition of the necessity and the utility of conservative dental treatment by the navy medical department proved by the contract of the Lords of the Admiralty with the London Dental Hospital. The renewal and the continuation of this contract is a proof of the success of the new departure. Should these benefits be confined to one recruiting station? Is the State justified in thus resorting to a charitable institution intended for the relief of the suffering poor? Is it fair to measure the curative effects of conservative dentistry by the attainments of students learning their profession? Is such treatment fair to the dental profession?—*George Cunningham, M.A., D.M.D., L.D.S.*

DENTAL REFORM IN THE ARMY.

The Army Medical Department is concerned with the medical, surgical, and hygienic treatment of large numbers of men, women, and children. The treatment, both surgical and hygienic, of the teeth should be included. A late Director-General's opinion on the necessity of improved modes of dental treatment and its advantages. Extraction the only treatment practiced. The army surgeon often delegates this duty to the hospital sergeant. The necessity of other remedial treatment recognized by the provision of an army tooth-stopping equipment. This equipment is defective both as to (1) instruments, and (2) materials supplied. The equipment compared with that provided for the United States Army. The regulations of the department as to the distribution of the tooth-stopping cases criticised. Table giving the results of an examination of the mouth and teeth of army recruits. The absurdity of providing an equipment in the application of which the army surgeon has received no training. How the equipment might be improved. How a modified dental training for army surgeons might be provided. What

would constitute a complete army dental equipment. A complete dental surgery under the care of a trained dental practitioner suggested for each military district. Evidence of army men as to the necessity and advantages of some such arrangement. Conclusions.—*George Cunningham, M. A., D. M. D., L. D. S.*

NEED FOR POPULAR INSTRUCTION IN PREVENTIVE DENTISTRY.

Decay of the teeth is the disease which dominates dental pathology. It is especially a disease of youth, though far from confined to that period of life. It is a preventible disease affecting all classes, and its curability is very great, but only at the expenditure of considerable time and money. The benefits of conservative dentistry are necessarily mainly confined to the smaller and richer part of the community.

Prevention is better than cure. The means of prevention are simple, the materials cheap and within the reach of all, but the knowledge which should guide the application of prophylactic measures is possessed by only a relatively small part of the community. The hygiene of the mouth forms an important and essential part of any scheme of popular instruction which pretends to be complete and thorough. An intelligent understanding of the construction of the human denture, and of the causes which lead to its destruction, must precede obedience to measures recommended to promote its development and to maintain its preservation.

Popular lectures, as free from technicalities as possible, profusely illustrated by means of the optical lantern, are valuable means towards this end. Experience has shown that large audiences of even the poorest classes are capable of appreciating such lectures. Illustrations with the lantern enable an audience ignorant of physiology to understand the subject matter intelligently without burdening the memory with the technical names necessarily employed in the description of physiological and pathological processes. Outline of a short lantern exhibition as a specimen of what such lectures may teach:—A tooth and its component parts. How the teeth are built up, and when and where. The temporary teeth, and the consequence of premature removal or undue retention of the same. The permanent teeth, the necessity of special attention to the first molar. The complete denture, how it is spoiled or ruined by decay. Causes of decay, its progress and its ultimate effects. Tartar and its effect on the teeth and gums. The results and effects of smoking on these structures. , “Painless and perfect dentistry.”

In order to get the maximum educational value from such lectures, they should be accompanied by a syllabus containing the most essential points which it is desirable should be remembered. A popular treatise

on our teeth and their diseases, edited by some reputable dental expert—or, better, experts—should be obtainable by those desiring to make a further study of the subject. The advantages of the popular lecture as compared with those of a treatise. The necessity of care in the selection of lecturers.—*George Cunningham, M.A., D.M.D., L.D.S.*

EXAMINATION INTO THE CONDITION OF TEETH OF SCHOOL CHILDREN.

Preliminary report of the Committee appointed by the British Dental Association.

Examinations of the teeth of children in a number of schools throughout the country are now being conducted by experts (dental practitioners approved of by the British Dental Association) in order to obtain reliable statistics for the following purposes:—(1) To acquire a more exact knowledge of the condition of children's teeth at various ages. (2.) To show, by means of the facts thus acquired, the disabilities under which children frequently suffer in their growth and development, and the important bearing this condition has upon the future health of the individual. This important investigation demands for its completion a longer time than has yet elapsed since its initiation, but such returns as have been made show results of considerable value.

Dental caries may be regarded as the dominant disease of childhood, since but a small proportion of dentures are unattacked by it.

Statistics will be furnished showing from the results of the examination of some 40,000 teeth:—the number of perfectly healthy dentures (permanent teeth); the number of carious, but savable teeth; the number of teeth (permanent) already lost by extraction; the number of permanent teeth requiring extraction; ditto temporary teeth; the number of sound teeth which it is advisable to lose by symmetrical extraction in order to most fully benefit the denture permanently; the number of irregular or deformed dental arches capable of being benefited by regulating appliances.

This statistical information is of a reliable nature, and derived not from the practice of dental practitioners or special hospitals, but from an inspection of industrial schools, training ships, and other scholastic institutions, and may be taken as typical of the condition of the teeth of the poorer classes both in England and Scotland. This condition being significant of the serious extent to which the physical stamina of the nation is injured, is so deplorable as to arrest the attention of such a meeting of hygienic experts as this. The means of alleviating this sad condition are at hand, and in the best interests of the community it is of the highest importance that such means should be made available.

PTOMAINES POISONS.—Recent cases of poisoning by some mysterious agent have called public attention to a subtle and most virulent form of poison recently discovered by the medical profession. "Ptomaine" is the name given to this poisonous agent, which is even at present but little known. Ptomaines, according to accepted theory, are alkaloids generated during decay, and closely resemble the vegetable alkaloids, but owe their origin to the putrefaction of animal matter.

It has scarcely been ten years since the attention of toxicologists was attracted to ptomaines. Yet the researches of Selmi, who discovered and named ptomaines, threw a curious light upon the obscurest pages of the history of poisoning, those which relate to the mysterious and fascinating exploits of the Italian poisoners of the seventeenth and eighteenth centuries.

It is believed that the ptomaines figured potently in their noxious preparations, because in Italy, according to tradition, the famous and deadly *acquetta di Perugia* was a secret compound, prepared by rubbing white arsenic into the flesh of a pig and collecting the liquid which dropped from the flesh.—*Northwestern Medical Journal*.

ABOUT NOSES.—In January last a difficult surgical operation was successfully performed in Decatur, by Dr. William Barnes, of that city, which attracted the attention of the profession and unfortunate people throughout the country. It was the transplanting of four cat ribs in the broken nose of Mrs. Addie L. Davis. The bones of the nose had decayed, leaving that member in a condition mortifying to the otherwise handsome lady. The bones were taken out by the surgeon and the cat's ribs inserted. The bridge of Mrs. Davis' nose is now solid and straight, and she is the happiest woman in Decatur. A similar operation was lately performed by Dr. Barnes, who made a new nose bridge for R. D. Rowe, of Las Vegas. Quite a number of people witnessed the operation while Rowe was under the influence of chloroform. It was known that the bone grafting in New York cases had failed because of the sloughing off of the flesh, but there has been no trouble whatever with the Decatur case. It has been in every way successful.—*Northwestern Medical Journal*.

PLATINUM.—Most of our readers have doubtless noticed the two short bits of wire melted into the glass of incandescent electric lamps, and which serve to convey the current to the carbon filament in the interior. These wires are of platinum, a metal which is now nearly as valuable as gold, and constantly increasing in price, owing to the demand for it for

this very purpose. No other metal has hitherto been found available, as platinum expands when heated at nearly the same rate as glass, thus keeping the joint air-tight through all variations of temperature. But it is now announced that a process has been discovered by which other and cheaper metals can be firmly welded to glass and answer as well as platinum in the electric lamps. If this reported discovery is a genuine one, it will materially reduce the cost of electric lamps, and also reduce the price of platinum to a point where it can more extensively be used for chemical and physical apparatus. Complete details of the new process will be awaited with interest.—*Popular Science News.*

WHERE OIL-STONES COME FROM.—Washita oil-stone rock is crystallized silica. The crystals are very small, and are formed in clusters with point ends interlaced, leaving numerous cavities. These minute crystals are hexagonal in shape, with sharp points, and can be seen under a microscope when magnified about 100 times. They are harder than steel, and that is why whet-stones cut from this rock will wear and sharpen steel tools. Washita whet-stones are called oil-stones, because oil must be used to fill the cavities and float away the steel particles that are cut off the tools. The peculiar geological formation from which these rocks are taken is not known to exist outside the State of Arkansas, where it occurs in many of the mountains of Saline, Hot Springs, Garland and Montgomery counties. These strata are in a vertical position varying from nearly perpendicular to horizontal, and have been considerably broken up by upheaval or folding of the earth crust.

A NEW GOLD-COLORED ALLOY.—An alloy of copper and antimony in the proportion of 100 to 6 is made by T. Held by melting the copper and subsequently adding the antimony, and, when both are melted and intimately mixed, fluxing the mass in the crucible, with an addition of wood ashes, magnesium, and carbonate of lime, which has the effect of removing porosity and increasing the density of the metal when cast.

The alloy can be rolled, forged, and soldered in the same manner as gold, which it very closely resembles when polished, the gold color being unchanged, even after long exposure to ammonia and acid vapors in the atmosphere.

The cost of the alloy in the ignot is stated at about twenty-five cents per pound.

MAN'S SUPERIORITY TO THE ANIMALS.—It takes four men to give an elephant castor oil, the dose being $\bar{5}$ cxxviii. We have known it to take three women and two men to give a small boy castor oil, dose only $\bar{5}$ j.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.—This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own society, signed by the President and Secretary of said society, with five dollars for annual dues. Attendance as a delegate at an annual meeting of the Association is not necessary in order to obtain membership. On receipt of the above amount the weekly journal of the Association will be forwarded regularly.

TO STERILIZE INSTRUMENTS WITHOUT DULLING THEM—(V. Bergmann's method).—To render instruments perfectly aseptic, and to preserve the cutting edges from oxidation, they are boiled for five minutes in a 1 per cent. solution of bicarbonate of soda. They can remain in this solution indefinitely, without rusting or dulling the cutting edge. When required for operation they are taken out, dried with a sterilized piece of gauze, and handed to the operator. Whenever, in the course of operation, they come in contact with anything not aseptic, all that is required to resterilize them is to dip them a few seconds into the boiling solution of sodium bicarbonate.—*Miller, in Medical and Surgical Review.*

SUBSTITUTE FOR LEATHER.—A German inventor has devised a new material which is intended as a substitute for leather in many of its uses. This material consists of panels of wood with wire netting between, the whole being glued together under heavy pressure. The sheets thus made are said to be very tough and pliable, and suited for making trunks and other uses that require strength.

HAPPY THOUGHT.—One day, in 1830, when a working jeweller, Joseph Gillott, now the famous steel pen maker, accidentally split one of his fine steel tools, and being suddenly required to sign a receipt, not finding his quill pen at hand, he used the split tool as a ready substitute. The happy accident led to the idea of making pens of steel.

THE QUALIFICATIONS OF A PHYSICIAN IN OLDEN TIMES.—A statute of Henry VII. ordains that the practice of the healing art shall be limited to those persons that be profound, sad, and discreet, grandly learned, and deeply studied in physic.

VACCINATION.—According to the *Medical Record*, in Germany vaccination is compulsory, in France it is not. In Germany the total mortality in the entire country from small-pox was 168. In Paris alone during the same year it was 382. In Alsace the annual mortality per 100,000 from small-pox has fallen, since the annexation of the province to Germany, from 2.14 to 0.22. The citizens of Zurich voted to do away with compulsory vaccination in 1883. The number of deaths from small-pox in 1882 was 3; in 1883, 8; in 1885, 52; and in 1886, 85.

LONDON MEDICAL STUDENTS.—Medical students in London have been compelled to go through a course of four years' study, hospital attendance, and lectures before being qualified to appear for the final examination. By an order of the Grand Medical Council of England, issued last month, the term of preparation has now been extended to five years.—*New England Medical Monthly*.

STRENGTH OF WIRE.—Cast steel wire is the strongest, a wire with a sectional area of one square millimeter sustaining a weight of about 184 pounds. Antimony is the weakest metal, breaking with a weight of one and a half pounds. Other metals give the following figures under the same conditions: Lead, 5.19 pounds; gold, 61.60; platinum, 77; copper, 90.20; and iron, 140.71.

COPPERED IRON.—A process has been recently invented by which iron may be coppered by dipping it into melted copper, the surface of the iron being protected by a layer of melted cryolite and phosphoric acid. It has been found that if the article when immersed is connected with the negative pole of a battery the coppering is done more rapidly.

WHEN STRYCHNINE WAS DISCOVERED in 1818 by the two chemists, Pelletier and Caventon, it was called Vauqueline, after the eminent chemist; but he, having witnessed the terrible sufferings of animals upon which it was tried, begged the discoverers not to associate his name with it.

She—Oh, my tooth aches just dreadfully! I don't see why we cannot be born without teeth.

He—I think, my dear, that if you will look up some authority on that point you will find that most of us are.—*Omaha World*.

THE DENTAL ADVERTISER.

CONDUCTED BY THEO. G. LEWIS, D. D. S.

BUFFALO, N. Y., OCTOBER, 1891.

A CHANGE IN EDITORIAL MANAGEMENT.

THE DENTAL ADVERTISER has been in existence twenty-two years, and during all that time has been conducted by the present editor. Owing to a change in business matters, which now occupy his whole time, he feels that he can no longer continue the editorial management of this journal with justice to the subscribers or to himself; therefore, with this issue he severs his connection with the journal as editor.

It would be an untruth to say that he lays down the editorial pen with regret, as anyone who has had the least experience in the management of a journal knows that it involves no small amount of labor, thought, and perplexity. On the contrary, it is with pleasure that he contemplates relief from editorial duties and an opportunity to give place to a successor who cannot fail to be as acceptable to the profession as he is to the publishers.

The gentleman chosen to guide the fortunes of THE DENTAL ADVERTISER to future success, is DR. W. C. BARRETT, formerly editor of the *Independent Practitioner*, who will after this issue have the entire editorial management. Dr. Barrett is so well and favorably known to the dental world as a ready and forcible writer, that a formal introduction would be superfluous.

In retiring from the chair which we have so long occupied, it is not to be imagined that we shall no longer take any interest in THE ADVERTISER. As one of its publishers, we shall have charge of the advertising department and shall omit no opportunity to forward its interests. But henceforth the sole editorial management will be in the hands of Dr. Barrett, and he alone will be responsible for its utterances. We say this that he may feel perfect freedom in its conduct, and that its readers may fully comprehend that there will be no interference in the discharge of his

duties. THE ADVERTISER will be in the future what it has been in the past, devoted to the best interests of the dentist. The advertising pages are ours, and with them the editor will have nothing to do.

In connection with the above, we desire to acknowledge our indebtedness to Dr. Barrett for the assistance he has given us in the July and October issues. In short, he has kindly prepared nearly all the matter for the issues named. Without his assistance, the last two numbers would have been sadly deficient in interest or readable matter.

THEO. G. LEWIS.

THE SARATOGA MEETING.

The late meeting of the American Dental Association came dangerously near being the best that has been held for a long time. This was not anticipated, for Saratoga is not a good place to hold it. The members become scattered and cannot keep together. The number and quality of the papers presented were an especial surprise, for very little had been hoped in this direction.

There is no use in disguising the fact: the A. D. A. has not for some years been what it should be. There has been a distinct falling-off from the old days. The time of the meetings is frittered away in debating points of order, and in anything but that for which the meeting is supposed to be held,—the reading and discussion of scientific papers. The business affairs of the Association are too obtrusive, and absorb time that is valuable. If one were to judge by some of the meetings, he would be led to the belief that to run the machine was the chief end for the annual gathering, whereas that should be a mere incident. There is altogether too much business to transact—matters that were better left untouched.

It is a fact that too large a number of the best thinkers in dentistry are of the opinion that, save for the pleasure of once a year meeting old friends, it does not pay to visit the A. D. A. The dental section of the American Medical Association is absorbing a great deal of the talent of dentistry. That is because of an absence of management, and the felicitous lack of machinery. There is time for debates and concentration of thought. If a paper of value is read there, it is believed that it can receive serious consideration.

This ought to be the case at the A. D. A. to a greater extent than it is. At the late meeting there were some unusually valuable papers presented; but there were so many things to interfere with their consideration, that very few of them were properly discussed, and the adjournment came

before the sections were half through. This is very unsatisfactory, and the good writers of dentistry will not continue to give their best thought to a society that does not show sufficient appreciation to spend time in discussion.

And yet, there was much that was encouraging at the meeting. Never before have technical, scientific papers been received with so much favor. It has but too often been the case, that when such a theme was announced there was an exodus from the hall to the corridors and the street. If a member presented a subject that involved some of the higher principles, and that demanded thought on the part of the listeners, there was deprecation on the lips, even of some of those who are prominent in the management of the Society, and his paper was met by the sneer, 'That ain't dentistry,' from those who have no ideas above pulling teeth and making rubber dentures.

At the late meeting some papers of a highly technical nature were listened to with real attention, and received respectful treatment. So there is hope that the tender bud shall not be blasted, but that it may grow and yet bear fruit. This indication was especially grateful to those whose chief interest is in the advance of scientific thought. The management has not always been vested in those who were in sympathy with this feeling, and those who desired to discuss technical matters have been made to feel that they were rather intruding upon the patience of those who wished to tinker at the by-laws, or who were absorbed in the election. The members of the executive committee have been so overwhelmed with the importance of the business interests, that they could not themselves find time for anything else.

A committee was appointed at Saratoga to propose such changes as would amend these things. There are three subjects that sadly need attention. One is the Section business. Nothing could be more absurd than the dividing of a society into sections, when there are not enough of properly qualified members to sustain a technical debate in the general meeting. The Sections of the A. D. A. never have done anything whatever; not one of them has ever held a meeting for discussing scientific subjects. They are cumbersome, and should be abandoned.

Another thing is, that some provision should be made for sending out abstracts of important papers in advance of their reading, that members may come prepared for intelligent discussion; that they may know what important papers are to be presented, so that each may bring something worthy the occasion and subject.

But the principal reform demanded is in the method of transacting business. One-half the time must not be given up to grave debates upon points of order, if the Association is to preserve the respect of intelligent men. The regular sessions must be kept sacred to the consideration

of papers and scientific matters. The routine business must be got rid of in some way, either by holding special sessions for its disposal, or by relegating it to special committees. Dentistry has grown to be too learned a business to have the time of its best exemplars taken up by strife over elections to office, and the consideration of parliamentary and unparliamentary tactics. The A. D. A. is not a bear-garden, nor a ward caucus, that its attention is to be constantly absorbed in the politics of dentistry.

It is to be hoped that this committee of revision will be enabled to present satisfactory plans for the abatement of these perplexities, and that then the constitution and by-laws will be given a good long rest. We have always been impressed with the wisdom of Solon, the ancient law-giver, who, when he had presented Athens with a new constitution, provided that if anyone desired to propose an amendment, or to offer some standing resolution, or to spring some new scheme to distract the minds of the members of the Areopagus from their legitimate work, he should do it with a halter about his neck, that in case it was not adopted no time need be lost in the hanging which should inevitably follow. Will not the committee propose such a rule for the American Dental Association?

STERILIZATION OF DENTAL INSTRUMENTS.

The last decade has taught the world more concerning true surgical pathology than all the twenty-three hundred years beside that have elapsed since the days of Hippocrates, the Father of Medicine. The eighth decade witnessed wonderful advances, while the ninth has given us a fair discernment of that which the eighth but ushered in. What shall the tenth, upon which we have now fairly entered, bring to us?

In all probability, one thing will be a more perfect comprehension of how best to secure a state of asepticism, or of freedom from pathogenic, disease-producing bacteria. Miller has shown us in his latest writings that the source of infection is not the air. He makes an elaborate computation to demonstrate that only once in ten thousand times could a cavity, the size of the usual opening into a pulp chamber, be infected from germs floating in the atmosphere. It is from the fluids of the mouth, and from infected instruments, that septic inoculation takes place. Every unclean bur and every foul excavator may carry with it into the mouth a disease-producing organism. The patient who visits the dentist in search of health may actually be infected with loathsome disease instead.

Nor is the danger very remote. Any dentist who will keep his eyes open, and who is sufficiently intelligent to recognize the symptoms of septic infection, has seen cases in which pyorrhœa, and other communicable diseases, have actually been the result of a visit to the dentist. Instances are not at all unknown in which innocent people have acquired the primal syphilitic lesion from a dentist's instruments.

Read the tale of some of Miller's experiments, you who would treat this as a light matter, and learn how he has inoculated mice and other animals by simply making a slight puncture with the point of an instrument infected from a mouth, the possessor of which probably supposed it to be in a decently cleanly state, and how the animals exhibited all the peculiar symptoms of the septic condition, constantly aggravated until death closed the scene. Then recollect that an instrument in your hands, and in a similar plight, might have infected some fair and guileless maiden who had intrusted herself to your care, had it been used in her mouth and the tissues been never so slightly wounded by it. Will not the conscientious practitioner tremble at the risks he may have run, and groan in spirit at the thought of the injury he may have inflicted? But what is to be said of the dentist who is yet recklessly rushing on in his filthy ways, regardless of the great harvest of disease which must be garnered from the seeds he is so widely sowing.

But how is the conscientious dentist, who is honestly striving to give a fair equivalent for the fees he is receiving—how is he to avoid becoming a curse instead of a blessing?

In the first place, he can observe decent cleanliness, at least. It is well known that filth and dirt are the breeding places of disease germs. He can clean his instruments after every operation, never allowing them to go from one mouth to another without careful washing. That will remove many of the risks, and if a mouth be specially bad he can be specially particular in his purification. The very thought of carrying matter from the dirty teeth of some diseased roué to that of a pure young lady is—*ugh!*

But mere washing is not enough. No general surgeon of the present day would think of using instruments that had not been submitted to aseptic precautions. At the operating table they are kept in an antiseptic solution. The surgeon who would neglect this would not be recognized by his brethren.

Perhaps these extreme prophylactic measures are impracticable for the dentist. He may not be called upon to do more than thoroughly to clean his instruments after each patient, unless there are indications of septic conditions. But if he does not sterilize them after working in septic canals, after opening abscesses, after operating in a mouth infected with pyorrhœa, and especially in one that bears any indication of erosions

that may by any possibility be of a specific character, he is unfit to have anything to do with the mouth of another human being.

How shall this sterilization be accomplished? Miller has shown in his latest writings that sterilizing fluids cannot be depended upon. A solution of carbolic acid, trichlorophenol, and even of mercuric chloride, proved absolutely unreliable, unless the instruments were allowed to remain in it for hours, and that of course is impracticable. Hundreds of experiments showed that a bur, for instance, though left to soak for a long time in a solution of mercuric chloride, might not have the germs destroyed, because they would be deeply buried beneath the debris that would prevent the solution from reaching them.

The only thing that proved efficacious was first, the mechanical cleaning with a brush of all instruments like burs, and then their submersion for from three to five minutes in boiling water. This was reasonably sure death to all pathogenic or disease-producing organisms.

But boiling water is apt to rust instruments. It does not draw the temper from steel, but it tarnishes it, at least. This may be partially remedied, and the sterilization be made more complete, by adding a little carbonate of soda to the water.

We have for some time been using an apparatus originally devised for the sterilization of milk and other foods. It consists of a chamber, which is enclosed within a protecting jacket. Within this is a perforated tray, upon which instruments can be placed. A double water receptacle in the bottom opens by a comparatively small aperture into the sterilizing chamber, and a gas burner or lamp beneath it causes the water to boil violently at the opening and to give off steam. This being confined within the double chamber can be made even superheated, and it is to this steam that the infected instruments are submitted for a few moments. When removed and wiped, they are sufficiently hot to become entirely dry in a moment.

The apparatus is made of tin and copper, and is a modification of what is known as "The Arnold Steam Sterilizer." Its cost is only between two and three dollars.

ETHICS AND ETHICAL MATTERS.

There is always a deal of philosophy in *The Dominion Dental Journal*, but sometimes one cannot exactly comprehend its application. In the September number, for instance, in the editorial, "Code of Ethics," we are puzzled to know for just what the editor is pleading. It would appear to be a justification of such associations as The Goodyear Dental

Vulcanite Co., and The International Tooth Crown Co.; but surely that cannot be the aim of the writer. He says:

“When a dentist devises or discovers something which is generally recognized as valuable, and which his confreres are glad to obtain; when societies ask him and pay him to give clinics, and in spite of arrogant sneers he demonstrates its value, his effort merits open and fair encouragement.”

Well, that depends upon what those efforts are. Dental societies sometimes exhibit quite as unprofessional and quackish a spirit as could any single practitioner. A society is very apt to be but the reflection of some ruling spirit within it, and the fact that it invites a man to give a clinic before it proves nothing. That, perhaps, has been brought about through some convenient friend of the one who desires an opportunity to exhibit something that he has for sale. Societies are very frequently “worked” in this way, and in a manner that is little to their credit.

The “encouragement” that a demonstrator merits depends largely upon the methods he employs. Societies are supposed to be instituted for the benefit of dentistry, and to stimulate a professional spirit. If the methods of the proposed clinician tend to this, he should be given all the encouragement possible. If they do not, the only encouragement offered should be a frigid scapula. If especially, as in many instances, the proposed operator is living in open violation of all professional ties and obligations, if he is a notorious advertiser and an offensive opponent of all the ethics usually accepted among reputable dentists, and which it is the duty of dental societies to support, the encouragement offered should be with a club.

The patent question has not necessarily anything to do with the question of ethics. There is nothing essentially unprofessional in the taking out of a patent. Did anyone ever criticise the late Dr. Edward Maynard for patenting his invention of the breech-loading rifle, which revolutionized the manufacture of fire-arms? But if Dr. Maynard had patented some process in filling teeth, the essential principles of which were as old as dentistry, and had then, under cover of our systemless code of patent laws, sought to establish an odious method of office license, with all its detestable espionage and its execrable fostering of an unprofessional, exclusive, jealous spirit among dentists, does any one think that Dr. Maynard's name would be justly held in such honor as it is to-day?

You see there are patents, and then again there are patents. There are those which honorably protect an original discovery, and there are those which are but thievery under another name.

The Dominion Dental Journal is unfortunate in its illustrations. There is not much in common between Doctors Barnum and Land. The one

discovered a most useful adaptation of an already well known article. There was really no invention about it. It was a novel use for an old invention, but it was pregnant with the greatest good to dentistry. With true professional spirit he gave it to his brethren, and probably received from a grateful profession more than he could have obtained in any other way. While of very wide adaptability, his discovery was not one from which much money would have been the net result. He could not have controlled the manufacture of rubber, for that was a monopoly already established by others, while the collection of royalties for the use of a previously manufactured article is attended with too many difficulties to be pecuniarily profitable. Certainly, he has been made immensely rich in the good will of his compeers. There are many things worth striving for besides money, such as "honor, love, obedience, troops of friends," though many men seem but too ready to sacrifice all these for a few dirty dollars.

The other person used as an exemplar has shown no sympathy with the spirit exhibited by Dr. Barnum, and believes that the latter should have "milked" the profession for all that it was worth. His own views are those of the spirit of trade, and his devices are bunched together into a kind of system of patent dentistry, for the practice of which office licenses are or have been issued, upon the principle of the Goodyear Dental Vulcanite Co., and the International Tooth Crown Co.

This he has a perfect legal right to do, but what about the ethical standing of societies which encourage that kind of thing? Shall we abolish the code entirely? Is there not room for an honest difference of opinion with the men who would do this?

We are always instructed by reading *The Dominion Dental Journal*, the more so when we can antagonize its views, for then it leads one to reflection. The man who proposes to deny the conclusions of its editor needs to have his wits about him, and to study his ground thoroughly. *The Journal* is a great provocative of thought, hence this article.

THE HOT BLAST.

In the filling of teeth with gold there is one thing which is of the very first importance, and which at the same time is almost universally neglected, and that is dryness of the cavity. It is probable that nearly every operator would be offended if he should be personally charged with carelessness on this point; and yet, even among those who pretend to excellence in gold filling, the operator who secures absolute dryness is an exception, for the mere sopping out of the saliva by means of bibulous paper or spunk is not enough.

To one who has never employed any methods aside from the use of the rubber dam and absorption, it is astonishing what can be done in a dry cavity. Gold seems absolutely to adhere to such walls, while the plastic fillings need no undercuts whatever for their retention. Oxy-phosphates, inserted in a dry cavity and kept free from moisture a short time, form comparatively lasting fillings, while amalgam becomes a different kind of material under such circumstances. Three years ago, by an accident, a young patient of the writer broke off the point of a central incisor, leaving as square a fracture as though it had been from a piece of glass. The rubber dam was applied and the end of the tooth dried—*desiccated*—and oxy-phosphate of zinc built on it, over a very nearly exposed pulp. There was no attempt at excavation, but that oxy-phosphate, so much of it as has not worn away, is in place to-day.

Of course, to secure absolute dryness, artificial means must be used. The most effectual is a current of hot air. We have never seen but two appliances which satisfactorily furnished this. The one was in the office of a New York dentist, and it consisted of a platinum coil, heated by an electric current from the street supply. A current of air was forced through this from a condensing chamber. But it was somewhat cumbrous and uncertain in its action.

The other consists of a platinum tube connected with a battery, through which a current of air is forced by means of a rubber bulb. This has been in use by the writer for two years, without giving the battery any attention whatever, save about twice a year supplying the water which had evaporated from the cups. The solid comfort that has been derived from this apparatus is beyond estimate. By taking a little time, the most sensitive teeth are excavated, comparatively without pain, for heat is the best obtundent that we have. There has been a marked improvement in the quality of many of the fillings inserted since it has been in use.

But perhaps its good qualities are nowhere more prominently displayed than in the preparation of roots for filling, and in the setting of gold and porcelain crowns. If the root be perfectly dried before a crown be placed in position, its displacement is almost impossible, the cement clinging as though it were a part of the tooth.

The principal difficulty in the way of the universal employment of hot air lies in the lack of an efficient apparatus for supplying the current. The one which has been in common use for some time, and which depends upon the heating of the bulb of an air syringe in the flame of a lamp, does not answer the purpose desired. The apparatus which the writer has employed with so much satisfaction was made by Dr. H. W. Parsons, of Wamego, Kansas. The plates of the battery are only immersed when the current is desired, and this accounts for the small degree of attention that it demands.

There are also connected with the machine poles for running an electric plugger or engine, and a Faradic apparatus, but it is the hot air part that commends it to the average operator.

A QUEER QUESTION INDEED.

Is it not possible that, under some circumstances, the cementum may grow after death? There are instances in which the hair has grown in the grave luxuriantly, and the cementum and the teeth themselves are of the same membrane as the hair.—*Dental Exchange*.

Certainly; certainly. If the hair grows after death the teeth will grow also. And the hair will grow *on* the teeth. And of course the nails will grow, so that it is quite possible for a man to get in a first-class fighting condition after a few years of burial in a fertile soil. The skin, of course, would increase in thickness and density, and a man would soon be clad in an impervious coat of mail. If his hair grows after death, you may be sure that the buttons on his shroud grow also, and a penny accidentally left on his eye will grow into a twenty-dollar gold piece.

But, seriously, the newspaper scientist is capable of believing anything. He utterly ignores the fact that growth is functional activity, while death is the cessation of function. He rests content in a credulity that accepts the stories of frogs and toads that have lain imprisoned in the solid rock ever since the days of creation, or since the commencement of the geological epoch to which they belonged—a few millions of years difference are nothing in the life of a frog. And he unhesitatingly swallows the accounts of lizards and snakes—air-breathing animals—that have lived for years in the human stomach, entirely deprived of air, and in the presence of gases evolved during digestion. But these same men utterly scout the demonstrated truths of bacteriological science.

CEMENTS AND CEMENT FILLINGS.

We have received from a correspondent in Texas, a request for information concerning the kind of cement which we find most satisfactory for crown and bridge work, and for filling teeth.

To employ a Hibernicism, the difference in cements lies principally in the dentists and the methods employed. A poor cement properly used, lasts longer than the best with bad manipulation. All phosphate cements that are worthy the name, are very much alike under like conditions. If a cement that we are using fails to last a reasonable time,

we immediately commence an autopsy to discover in what way it had been abused.

Was too much of the fluid used, or was there not enough? Was it inserted after crystallization had commenced, and worked too long, or was it not thoroughly mixed? Above all, was the cavity thoroughly dried, and was the cement kept free from moisture until it was fairly set? It is not sufficient that the cavity was wiped with absorbents until no moisture could be seen. Was it dried until the dentine changed to a distinctly white color? Ten chances to one the fault has been found in the work itself.

All oxy-phosphates and oxy-chlorides are temporary in their character, but their lasting qualities, like those of all other filling materials, lie principally in the operator. A virtuoso can scrape more exquisite music out of a common fiddle than a tyro can dig from the finest Cremona violin. Many operators who are accustomed to find the fatal blue line about their gold fillings blame the gold-beater, or solace themselves with that refuge for the incompetent, that "in proportion as teeth need saving gold is the worst material to use." Gold *is* a poor material in the hands of a poor operator, and so are the cements. But we have never met with a very bad failure in the use of any cement that might not be directly traceable to our own carelessness or incapacity, and we have tried about everything that is in the market. Of course there is some difference in them, but not a hundredth part as much as there is in operators.

NOVEL SURGERY.

At the late meeting of the American Dental Association, Dr. T. W. Brophy, Professor of Oral Surgery in the Chicago Dental College, reported an operation for the radical cure of cleft palate that indicates originality and true surgical intrepidity. Professor Senn, the well-known Professor of Surgery in Rush Medical College, pronounces it a new and original procedure, and proposes that it be called "Brophy's Operation."

The young patient is taken as soon after birth as practicable. Two holes are made on each side of the superior maxilla, about opposite the point at which the temporary molars will appear, and opening above the roof of the mouth. Through them are threaded ligatures which cross through the two halves of the jaw, and lie upon the floor of the anterior nares. To the ends of these are attached buttons, or anchors, resting against the buccal walls of the maxilla.

With a chisel, or other appropriate instrument, the extension of the malar process of the bone is now cut through, or nearly so, and traction

is made upon the ligatures sufficient to draw the two sides of the maxilla together, thus closing the cleft completely. Of course, the edges have first been pared, so that they can unite. If a cure succeeds, it must be radical.

The cases upon which Professor Brophy has so far operated seem to promise all that could be desired. Sufficient time has not yet elapsed to know what the condition will be when the patient has grown to maturity, but should there be any lateral contraction of the arch it can readily be remedied by orthodontial measures. Such a result is not anticipated, however, or at least not to such an extent as to produce deformity at all to be compared with that which originally existed.

The operation seems a very feasible one, and it is to the credit of dentistry that it has made another material contribution to general surgery.

ELECTRO-DEPOSIT DENTAL PLATES.

These do not seem to be a very decided success, if we may credit the report of the Committee on Dental Art and Invention of the Illinois State Dental Society, which says:

"The Ward Electro-Deposit Plate, a very prepossessing article, has now been before us long enough to arrive at some conclusion from practical observation as to its value as a substitute for swaged plates. The plates are prepossessing from their beauty in the newly finished state, from the possibility of easily obtaining an absolutely accurate fit, and the economy of material and labor as compared with a swaged gold plate. Those who have ever tried the protection of silver and the baser metals against the action of the fluids of the mouth by an electro-plate of gold, were very skeptical in their estimation of the future of this plate, and from the majority of the reports obtained, those who have refrained from employing the plates in their practice have met with less embarrassment than those who have employed them extensively.

"While those who have employed them invariably report very pleasing and satisfactory adaptations, the almost universal complaint is that the gold surface does not retain its original color and appearance; that in a longer or shorter time it takes on a cloudy, dirty appearance, becoming, in some cases in a very short time, unrecognizable as the original article. In some cases the plates do not stand the test of vulcanizing upon them, the enclosed silver sulphuretting in the process. One gentleman writes that it is very embarrassing to put into the mouth a gold plate and have it return in a few weeks looking like pot-metal. * * * The electro-plate of gold being in a thoroughly crystalline state, is at best a porous material as compared to fused and rolled gold."

A NEW DENTAL COLLEGE.

A homeopathic dental college has been organized in Cleveland, Ohio. At least it is to be a department in a homeopathic medical college. A very long list of instructors is announced, and if the new college has but one student for each teacher the class will be a large one to begin with. We think there will be fewer professors before a great while, for among so many there will be a lack of unity in teaching, and it will be impossible to follow a systematic course.

The following are the new professors: W. H. Whitslar, M. D., D. D. S., Principles and Practice of Dentistry, Dental Pathology and Embryology; H. F. Bigger, M. D., A. B., Operative and Clinical Surgery; J. Kent Sanders, B. S., M. D., Principles and Practice of Surgery and Surgical Pathology; E. R. Eggleston, M. D., Diseases of the Nervous System; Frank Kraft, M. D., Materia Medica and Therapeutics; Edward A. Darby, M. D., Anatomy; I. P. Wilson, M. D., Physiology; D. H. Beckwith, M. D., Sanitary Science; H. D. Bishop, M. D., Chemistry; H. L. Frost, M. D., Practical Anatomy; C. D. Ellis, M. D., Osteology; George E. Turril, M. D., Histology; D. R. Jennings, M. D., D. D. S., Operative Dentistry and Appliances; Dr. J. E. Robinson, Irregularities; Dr. Henry Barnes, Operative Dentistry; Dr. S. B. Dewey, Care of Children's Teeth and Continuous Gum Work; I. E. Sampsell, D. D. S., Prosthetic Dentistry; L. P. Bethel, D. D. S., Dental Medicine; George H. Wilson, D. D. S., Metallurgy; H. F. Harvey, D. D. S., Operative Dentistry. Dean of the Faculty, W. H. Whitslar, M. D., D. D. S. Superintendent of Infirmary, George H. Wilson, D. D. S.

We hope that the new school will prove as successful in the results accomplished as its most sanguine friend can anticipate. It has already opened its doors to students, and commenced its first course.

HEADS AND HANDS.

It is somewhat singular that the men who have made much of a figure in the world have usually been men with large hands and feet. Is there any connection between cranial and manual or pedal development? And yet, My Masters, if you will think of it, the man who wears a number six glove usually wears a number six hat.

Recall as many really fine operators as will readily come to your mind, and then try your recollection on the size of their hands. Did you ever know a great surgeon who had delicate fingers? The men of strong

minds have usually strong and rather coarse features, and their extremities are apt to be grandly developed.

Herein is comfort for the men of more bone than beauty. Let not the young dentist who is obliged to spend half his time in manicuring, despair. Despite his broad, flat fingers, he may yet arrive at the dignity of keeping a four-dollar-a-week office girl, and be enabled to place "Dictated" at the head of all his letters.

AN ABSURD INCIDENT.—It was at the late Saratoga meeting that a gentleman, formerly a practicing dentist but now engaged in selling dental goods, was allowed to place his table upon the main floor at an afternoon session, and give demonstrations of a process for which he was selling the apparatus. He sold out completely, and took many orders for future delivery. This was an outrageous violation of propriety, but to cap the climax a western professor gravely moved a vote of thanks for the clinic, *and it was unanimously carried.*

F. R. M. S.—Most men do love to attach a long string of initials after their names, sometimes significant of real culture and erudition—and sometimes not. Among those which belong to the latter class are the letters F. R. M. S.—Fellow of the Royal Microscopical Society. A man who parades these habitually must be badly in need of something to distinguish him. The distinction is an English one, and costs just ten dollars annually—rather a stiff price. A Delavan D. D. S. was once sold for only twelve dollars, and that paid but once.

While our English brethren confer the "distinction" of an F. R. M. S. as promiscuously as they do, the conditions not being as onerous as they were in the Delavan fraud, they will do well to be chary of their criticisms of American distinctions.

SUBSTITUTING DRUGGISTS.—If there is one being in trade who is more contemptible than another, it is the druggist who will substitute some cheaper preparation for that which is ordered by the physician. We have been prescribing the well known Listerine for a long time, and in some cases the result has not been what we had a right to expect. But a patient lately brought in a bottle of what was given her on such a prescription, and of all the fiery, nauseous decoctions that were ever used for the purpose intended, that was the worst. It no more resembled the genuine than onions do peaches. We are warning all our patients against that druggist.

COLLEGE WORK.—This is the period for the commencement of the winter work in the colleges, and to the men engaged in teaching the next six or eight months will be very busy ones, if they are faithful to their duties. We may criticise the schools as we will (and usually the strictures are by those who have never themselves passed through a regular curriculum of study, while the less they know about the matter the more bitter are their animadversions) but after all, we cannot forget that the colleges offer the only facilities for a professional education. If the practitioners of dentistry are to be intelligent, educated men, the schools must be sustained.

A NEW DICTIONARY.—Funk & Wagnalls, the well known New York publishers, are about to issue a Standard Dictionary of the English Language, which will embody many new principles in lexicography. It will be quarto in size, and will contain nearly 2,200 pages. It will be illustrated by more than 4,000 engravings, made expressly for it, and will define 70,000 more words than are contained in either Webster's, Worcester's, Stormonth's or Johnson's dictionaries, while it will have all that the latest editions of either of those standard works possess.

There is a staff of over one hundred editors, each an acknowledged authority in his particular field of learning, now engaged upon it. The work will contain many novel features that will commend it to every scholar, and which are approved by all the principal philologists. Very many educators and writers have written letters of commendation, and it seems to meet with universal approval.

It will be issued to advance subscribers for \$7, but will be sold, when completed, for \$12. It will be ready about January next. Full prospectuses may be obtained by addressing the publishers at New York.

NEW ENGLAND DENTAL SOCIETY.—The twenty-ninth annual meeting of this Society will be held in the Natural History Society building, corner Berkeley and Boylston streets, Boston, on Thursday and Friday, October 29th and 30th, 1891.

OBTAINING THE BITE.—Dr. W. Goodfellow, of Sussex, New Brunswick, writes us that a process which never fails to secure a correct bite in articulating artificial teeth, is to direct the patient to open the mouth and then to see that the tongue is placed firmly against the roof of the mouth, *well back*, and held there while closing it. In this position it is impossible to advance the lower jaw.

He is a "good-fellow" indeed who communicates to others the results of his experience and observation. We wish there were more of them.

BRITISH DENTAL ASSOCIATION.—The eleventh annual meeting was held in the Hall of the Royal College of Physicians and Surgeons, London, on the 20th, 21st, and 22d of August. The reports speak of it as being very successful, especially in attracting the public's attention to the specialty of dentistry. The retiring president was Mr. J. T. Browne-Mason, of Exeter; the president for the year was Mr. J. Smith Turner, of London; the president-elect is Mr. H. C. Quinby, of Liverpool. The next meeting will be held in Manchester.

The British Dental Association has no counterpart in this country. It is the legal representative society of Great Britain, and as such cannot be entirely devoted to the discussion of scientific subjects. There is a political and a social side to its meetings, and it would be hard to say which is held in the highest estimation.

The following American dentists were present: Isaac B. Davenport, Paris; A. F. Davenport, North Adams, Mass.; Kirk A. Davenport, Paris; L. C. Bryan, Basel, Switzerland; A. W. Harlan and W. B. Ames, Chicago, Ill.

THE COLUMBIAN MEETING.—It seems a pity that Columbus did not postpone his discovery of America a year, so that Chicago might be up to the anniversary date of '92. But there will be a grand meeting, all the same, in '93, if it is a year behind.

DENTISTS' SOCIETIES.

UNION MEETING OF THE FIFTH, SIXTH, SEVENTH AND EIGHTH DISTRICT DENTAL SOCIETIES OF THE STATE OF NEW YORK.

The Fifth, Sixth, Seventh and Eighth District Dental Societies of the State of New York will hold their sixth annual joint convention at the Iroquois Hotel, Buffalo, October 27th, 28th and 29th, 1891.

These meetings are among the largest and best held in this country, and this one promises to surpass all others in points of interest and attractiveness. Prominent men from this, adjoining States, and Canada, have already signified their intention to be present. An unusually interesting program of essays and clinics is being prepared, and a cordial invitation is extended to all dentists to attend the meeting. Special rates upon railways will be secured, and all arrangements for the comfort and convenience of those attending will be made.

For any information regarding the meeting, address the Chairman of the Committee, Charles S. Butler, Buffalo, N. Y.

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